eServer

http://www-1.ibm.com/support/docview.wss?rs=1201&uid=psg1SCOD-3ZVQ5W&loc=en_US&cs=utf-8&lang=e

August 8, 2006

Configuration and Options Guide

SCOD-3ZVQ5W

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Twentieth Edition (August 2006)
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Summary of Changes

- Versions of this document released on or after August 8th, 2006, will contain references to feature codes. Feature code is the nonmenclature used to specify components of configurable System x products used in US and Canada Web configurators.

  For more details about feature codes, contact your IBM representative.
- New EXP420 storage expansion unit
- New System Storage DS4200 disk system
- Various maintenance and support updates

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Information sources

http://www-1.ibm.com/support/docview.wss?rs=1201&uid=psg1SCOD-3ZVQ5W

Table 1. Information Sources

Audience	Where to go	How to get
IBM xSeries Configuration and Options Guide		
Customers	www.ibm.com/support/docview.wss?rs=1201&uid=psg1SCOD-3ZVQ5W	External PDF version
	www.ibm.com.com/servers/eserver/xseries/cog/	External HTML version
	www.ibm.com/servers/eserver/serverproven/compat/us/	Select <xSeries Compatibility>
Business Partners	www.ibm.com/partnerworld/pwhome.nsf/weblook/index.html	User ID and password required.
IBM Employees	www.ibm.com/support/docview.wss?rs=1201&uid=psg1SCOD-3ZVQ5W	External site
Feedback	datadoc@us.ibm.com	E-mail
IBM xSeries and Netfinity Rack Configurator		
Customers	www.ibm.com/servers/eserver/xseries/	Select <Configuration Tools>
Business Partners	www.ibm.com/partnerworld/pwhome.nsf/weblook/index.html	User ID and password required.
IBM Employees	www.ibm.com/support/docview.wss	External site
Feedback	datadoc@us.ibm.com	E-mail
IBM xSeries Configuration Aid		
Customers, Business Partners, IBM Employees	www.ibm.com/pc/support /site.wss/MIGR-41411.html	-
	www.ibm.com/servers/eserver/xseries/library/configtools. html	-
Feedback	datadoc@us.ibm.com	E-mail
PC Sales Guide/Configurator and WorkPad Pricer (updated twice per week)		
Business Partners	www.ibm.com/partnerworld/pwhome.nsf/weblook/index.html	User ID and password required.
Feedback	IBMSHD08@us.ibm.com	E-mail
Latest Product & Technical Information		
Customers	www.ibm.com/servers/eserver/xseries/ or call 1-800-772-2227	-
Business Partners	www.ibm.com/partnerworld/pwhome.nsf/weblook/index.html or call 1-800-426-7763	Select Products & Services (user ID and password required).
IBM Employees	www.ibm.com/support/docview.wss	External site

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Table 1. Information Sources (continued)

Audience	Where to go	How to get
Additional URLs		
Technical spec sheets (PSREF)	www.ibm.com/servers/eserver/xseries/	Select Technical spec sheets (PSREF).
IBM Datacenter Solutions	www.ibm.com/servers/eserver/xseries/windows/datacenter.html	-
Clustering (US, LA, CAN)	www.ibm.com/servers/eserver/xseries/	Select appropriate category or server.
Benchmark Results	www.ibm.com/servers/eserver/xseries/benchmarks/	Select appropriate category or server.
Options/NOS/ Server Compatibility	www.ibm.com/servers/eserver/xseries/	Select appropriate Product Type.
Active PCI	www.ibm.com/servers/eserver/xseries/	Select <xSeries Compatibility>, <Active PCI Info>.
IBM Storage Products	www.ibm.com/servers/storage/	Select appropriate category.
Adv Sys Mgmt Adapter Firmware	www.ibm.com/servers/eserver/xseries/	Select Servers, select Intel-based Servers, select Fixes, select Get Fixes, select appropriate category.
Flash BIOS Updates	www.ibm.com/servers/eserver/xseries/	Select Servers, select Intel-based Servers, select Fixes, select Get Fixes, select device drivers by server, select appropriate category.
ServeRAID™ Updates	www.ibm.com/servers/eserver/xseries/	Select Servers, select Intel-based Servers, select Fixes, select Get Fixes, select appropriate category.
VMware	www.ibm.com/servers/eserver/xseries/vmware.html	-
Options Continuation Program	www.ibm.com/servers/eserver/xseries/	-

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IntelliStation® video adapter selection guide

Video Adapter[1]	Imaging	Dual-head Graphics	Memory	Signal Width	Resolution Supported (each head)	Monitor Connector Type	Number/Type Monitors Supported	System Support[2]
3Dlabs Wildcat™ Realizm 800 PCIe[3]	Extreme 3D	Y	512/ 128MB	265/ 128-bit	2048 x 1536 (analog), 3840 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	Z Pro 6223, M Pro 6225, A Pro 6217
NVIDIA Quadro FX 4500 PCIe[3]	Extreme 3D	Y	512MB	256-bit	2048 x 1536 (analog), 3820 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	A Pro 6217, M Pro 6218, Z Pro 6223
NVIDIA Quadro FX 3500 PCIe	High Advanced 3D	Y	256MB	256-bit	2048 x 1536 (analog), 3840 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	A Pro 6217, Z Pro 6223
NVIDIA Quadro FX 3400 PCIe	High Advanced 3D	Y	256MB	256-bit	2048 x 1536 (analog), 3820 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	M Pro 6225, Z Pro 6223, A Pro 6217
NVIDIA Quadro NVS 285 PCIe	Performance 2D	Y	64MB	64-bit	2048 x 1536 (analog), 1280 x 1024 (digital)	2 DVI-D or 2 analog (both require pigtails convert the DMS59)	2 digital, hybrid or analog (any combination)	A Pro 6217, M Pro 6218, Z Pro 6223
NVIDIA Quadro NVS 280 PCIe	Performance 2D	Y	64MB	64-bit	2048 x 1536 (analog), 1280 x 1024 (digital)	2 DVI-D or 2 analog (both require pigtails convert the DMS59)	2 digital/ hybrid or 2 analog/ hybrid	M Pro 6225 & 6218, Z Pro 6223, A Pro 6217
ATI FireGL V3100 PCIe	Entry 3D	Y	128MB	128-bit	2048 x 1536 (analog), 1600 x 1200 (digital)	1 DVI-I and 1 analog	1 digital/ hybrid or 2 analog/ hybrid	M Pro 6225 & 6218

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Video Adapter[1]	Imaging	Dual-head Graphics	Memory	Signal Width	Resolution Supported (each head)	Monitor Connector Type	Number/Type Monitors Supported	System Support[2]
ATI FireGL V7100 PCIe	High Advanced 3D	Y	256MB	256-bit	2048 x 1536 (analog), 3820 x 2400 (digital)[5]	2 DVI-I	2 digital/ hybrid or 2 analog/ hybrid	Z Pro 6223, M Pro 6225 & 6218
NVIDIA Quadro FX 4000[3]	Extreme 3D	Y	256MB	256-bit	2048 x 1536 (analog), 3820 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	A Pro 6224
NVIDIA Quadro FX 3000[3]	Extreme 3D	Y	256MB	128-bit	2048 x 1536 (analog), 3820 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	A Pro 6224, M Pro 6230, Z Pro 6221
NVIDIA Quadro FX 1300 PCIe	Advanced 3D	Y	128MB	128-bit	2048 x 1536 (analog), 3820 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	M Pro 6225, Z Pro 6223
NVIDIA Quadro FX 1400 PCIe	Advanced 3D	Y	128MB	128-bit	2048 x 1536 (analog), 3820 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	M Pro 6225 & 6218, Z Pro 6223, A Pro 6217
NVIDIA Quadro FX 1100	Advanced 3D	Y	128MB	128-bit	2048 x 1536 (analog), 3820 x 2400 (digital)	2 DVI-I	2 digital, hybrid or analog (any combination)	A Pro 6224, M Pro 6230, Z Pro 6221
NVIDIA Quadro FX 500 AGP	Entry 3D	Y	128MB	128-bit	2048 x 1536 (analog), 1600 x 1200 (digital)	1 DVI-I and 1 Analog	1 digital/ hybrid or 2 analog/ hybrid	M Pro 6230
NVIDIA Quadro4 280NVS	High-Performance 2D	Y	64MB	128-bit	2048 x 1536 (analog), 1280 x 1024 (digital)	Analog (both require pigtails to convert the LFH60)	2 digital/ hybrid or 2 analog/ hybrid	A Pro 6224, M Pro 6220, M Pro 6230, Z Pro 6221

Notes:

1. Available only as standard equipment in an IntelliStation workstation model or configured to order via CTO.
2. See IntelliStation system At-A-Glance sections to identify models that include these standard video adapters.
3. Requires more space than the planar provides between slots, preventing the installation of an optional PCI adapter in the adjacent PCI slot.

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Chapter 1. IntelliStation M Pro 6218

Table 2. IntelliStation M Pro 6218 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[2]	Video Adapter (PCIe)[3]	Form Factor	Integrated Ethernet	Storage Controller[4]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
6218-10Y	3.0/800/2M-L2	1/1	1GB/4GB	NVIDIA Quadro NVS 280	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-12Y	3.0/800/2M-L2	1/1	1GB/4GB	ATI FireGL V3100	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-20Y	3.2/800/2M-L2	1/1	1GB/4GB	NVIDIA Quadro NVS 280	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-22Y	3.2/800 - 2M L2	1/1	1GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-25Y	3.0/800/2M-L2	1/1	1GB/4GB	NVIDIA Quadro NVS 285	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-27Y	3.0/800/2M-L2	1/1	1GB/4GB	NVIDIA Quadro FX 550	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-32Y	3.4/800/2M-L2	1/1	1GB/4GB	ATI FireGL V3100	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-35Y	3.2/800/2M-L2	1/1	1GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-37Y	3.2/800/2M-L2	1/1	1GB/4GB	NVIDIA Quadro FX 550	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-45Y	3.6/800/2M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SCSI	Fixed	73GB/900GB	48/32/48/16X Combo Drive	1/3	5/4
6218-46Y	3.4/800/2M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SCSI	Fixed	73GB/900GB	48/32/48/16X Combo Drive	1/3	5/4

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Table 2. IntelliStation M Pro 6218 At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[2]	Video Adapter (PCIe)[3]	Form Factor	Integrated Ethernet	Storage Controller[4]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
6218-47Y	3.6/800/2M-L2	1/1	2GB/4GB	ATI FireGL V7100	Tower	1GB	SCSI	Fixed	73GB/900GB	48/32/48/16X Combo Drive	1/3	5/4
6218-48Y	3.4/800/4M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 3500	Tower	1GB	SCSI	Fixed	73GB/900GB	48/32/48/16X Combo Drive	1/4	5/4
6218-54Y	3.6/800/2M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 4500	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-55Y	3.8/800/2M-L2	1/1	1GB/4GB	NVIDIA Quadro NVS 280	Tower	1GB	SCSI	Fixed	73GB/900GB	48/32/48/16X Combo Drive	1/3	5/4
6218-56Y	3.6/800/2M-L2	1/1	2GB/4GB	NVIDIA Quadro NVS 285	Tower	1GB	SCSI	Fixed	73GB/900GB	48/32/48/16X Combo Drive	1/3	5/4
6218-57Y	3.8/800/2M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-58Y	3.6/800/2M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-59Y	3.8/800/2M-L2	1/1	2GB/4GB	3DLabs Wildcat Realizm 800	Tower	1GB	SCSI	Fixed	73GB/900GB	48/32/48/16X Combo Drive	1/3	5/4
6218-84Y	3.2/800/2M-L2 Dual Core	1/1	2GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-85Y	3.4/800/4M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-87Y	3.4/800/4M-L2	1/1	2GB/4GB	NVIDIA Quadro FX 1400	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-92Y	3.6/800/4M-L2 Dual Core	1/1	2GB/4GB	NVIDIA Quadro FX 1500	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4
6218-94Y	3.6/800/4M-L2 Dual Core	1/1	2GB/4GB	NVIDIA Quadro FX 3500	Tower	1GB	SATA	Fixed	80GB/750GB	48/32/48/16X Combo Drive	1/4	5/4

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Table 2. IntelliStation M Pro 6218 At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[2]	Video Adapter (PCIe)[3]	Form Factor	Integrated Ethernet	Storage Controller[4]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
6218-1GY	3.0/800/ 2M-L2	1 / 1	1GB/ 4GB	Open Graphic	Tower	1GB	SATA	Fixed	80GB/ 750GB	48/32/48/16X Combo Drive	1 / 4	5 / 4
6218-4GY	3.6/800/ 2M-L2	1 / 1	1GB/ 4GB	Open Graphic	Tower	1GB	SATA	Fixed	80GB/ 750GB	48/32/48/16X Combo Drive	1 / 4	5 / 4
6218-5GY	3.4/800/ 4M-L2	1 / 1	2GB/ 4GB	Open Graphic	Tower	1GB	SATA	Fixed	160GB/ 750GB	48/32/48/16X Combo Drive	1 / 4	5 / 4
6218-9GY	3.6/800/ 4M-L2 Dual Core	1 / 1	2GB/ 4GB	Open Graphic	Tower	1GB	SATA	Fixed	160GB/ 750GB	48/32/48/16X Combo Drive	1 / 4	5 / 4
Note: IntelliStation M Pro 6218 also provides two 9-pin serial ports, one 25-pin serial port, eight USB (two front, six rear), one keyboard, one mouse, one Gigabit Ethernet, and two IEEE 1394 ports (one front, one rear).												

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 6218-10Y is 6218-10U. See the product-specific, Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for the A.P. geography follows the same pattern. Substitute the last character with a country-specific designator.
2. The IntelliStation M Pro 6218 supports up to 8 GB of PC2-4200 CL3 ECC DDR2 SDRAM DIMM memory. To achieve maximum memory capacities, standard memory replacement may be required with the currently supported memory DIMMs.
3. The ATI FireGL V7100 and 3DLabs Wildcat Realizm 800 require the external PCI Express power direct from the power supply. Slot 1 will not be available when using the 3Dlabs Wildcat Realizm 800 graphics adapter.
4. SAS Storage Controller is optional on the IntelliStation M Pro 6218. SCSI models require a SCSI controller and cable, which are included with models that have a SCSI HDD installed. Mixed SATA and SAS, SATA and SCSI; and SAS and SCSI HDDs configuration are not supported.

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IntelliStation M Pro 6218 processor options

SBB Number	Feature Code	Standard Processor	SMP Support
39M6250	0299	Intel Pentium 4 Processor 630, with EM64T (3.0 GHz 2M L2)	10Y, 12Y, A0Y, A2Y
39M6251	0600	Intel Pentium 4 Processor 640, with EM64T (3.2 GHz 2M L2)	20Y, 28Y, B0Y
39M6252	0601	Intel Pentium 4 Processor 650, with EM64T (3.4 GHz 2M L2)	32Y, 34Y, C2Y, C4Y
39M6253	0602	Intel Pentium 4 Processor 660, with EM64T (3.6 GHz 2M L2)	45Y, 47Y, 48Y, D5Y, D7Y, D8Y
39M6259	0603	Intel Pentium 4 Dual Core processor 840, with EM64T (3.2 GHz 2M L2)	84Y, J4Y
39Y8620	0692	Intel Pentium 4 HT Processor 631 (3.0GHz/2MB L2)	25Y, B5Y, 27Y, B7Y
39Y8621	0693	Intel Pentium 4 HT Processor 641 (3.2GHz/2MB L2)	35Y, C5Y, 37Y, C7Y
39Y8622	0694	Intel Pentium 4 HT Processor 651 (3.4GHz/2MB L2)	46Y, D6Y, 48Y, D8Y, 5GY
39Y8623	0695	Intel Pentium 4 HT Processor 661 (3.6GHz/2MB L2)	56Y, 58Y, F8Y
39Y8624	0696	Intel Pentium D Processor 950 (3.4GHz/4MB)	85Y, 87Y, H7Y

IntelliStation M Pro 6218 memory options

SBB Number	Option Number	Feature Code	Description[1]
30R5154	30R5148	0530	512MB DDR2 533 DIMM Memory
30R5155	-	0531	1GB DDR2 533 DIMM Memory
-	30R5149	-	2GB (2x1GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM
30R5156	-	0532	2GB DDR2 533 DIMM Memory
-	30R5150	-	4GB (2x2GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM
25R7502	-	0527	2GB DDR2 533MHz
25R7498	-	0528	512MB DDR2 533 DIMM Memory
25R7499	-	0529	1GB DDR 533 DIMM Memory

Notes:

1. Memory DIMMs must be installed in pairs. Each pair must be identical.

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Table 3. Standard Memory Configuration

Model	Std. DIMM Configuration
10Y, 12Y, 20Y, 32Y, 34Y, A0Y, A2Y, B0Y, C2Y, C4Y, 25Y, B5Y, 35Y, C5Y, 1GY, 4GY, 27Y, B7Y, 37Y, C7Y	2x512MB DDR2-533MHz
28Y, 45Y, 47Y, 48Y, 59Y, 84Y, D5Y, D7Y, D8Y, F9Y, J4Y, 46Y, D6Y, 56Y, 58Y, F8Y, 85Y, 87Y, H7Y, 48Y, D8Y, 92Y, J9Y, 94Y, 5GY, 9GY	2x1024MB DDR2-533MHz

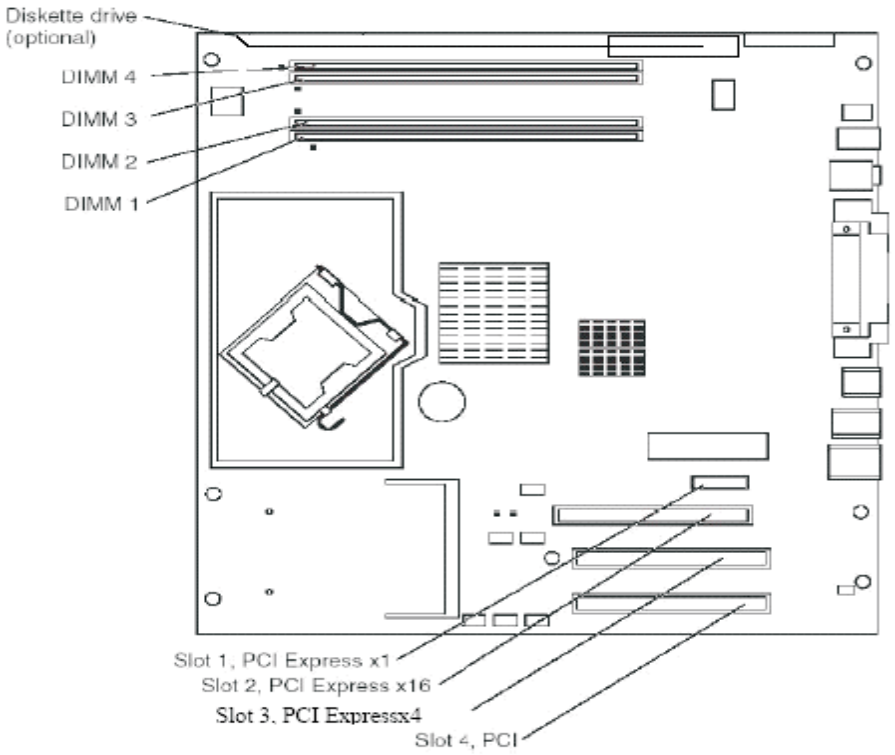

Figure 1. M Pro 6218 system board

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IntelliStation M Pro 6218 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
Diskette Drives						
23K4959	05K9276	5300	IBM USB Portable Diskette Drive	-	-	-
0005309	40K1692	5309	IBM USB Portable Diskette Drive	-	-	-
Simple-Swap SATA HDDs[1,2]						
90P1399	40K6868	5219	160GB 7200-rpm Simple-swap SATA HDD	SL	4, 2, 5	3
73P8015	40K6872	5243	250GB 7200-rpm Simple-swap SATA HDD	SL	4, 2, 5	3
39M4501	39M4500	5290	80GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	4, 2, 5	3
39M4505	39M4504	5291	160GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	4, 2, 5	3
39M4509	39M4508	5292	250GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	4, 2, 5	3
39M4515	39M4514	5288	500GB 7200 RPM 3.0 GB/sec SATA HDD Simple-Swap	SL	4, 2, 5	3
Non Hot-Swap SCSI HDDs[1]						
40K1061	40K1029	5157	73G 10K rpm SCSI U320 (Non-Hot-Swap)	SL	4, 2, 5	3
40K1062	40K1030	5182	146GB 10K rpm SCSI U320 (Non-Hot-Swap)	SL	4, 2, 5	3
40K1063	40K1031	5183	300GB 10K U320 SCSI NHS	SL	4, 2, 5	3
40K1064	40K1032	5184	36GB 15K U320 SCSI NHS	SL	4, 2, 5	3
40K1066	40K1034	5185	146GB 15K U320 SCSI NHS	SL	4, 2, 5	3
32P0752	32P0785	5220	73G 15K rpm SCSI U320 (Non-Hot-Swap)	SL	4, 2, 5	3
Simple-Swap SAS HDDs[1]						
26K5727	26K5721	5259	36GB 15K SAS (simple swap)	SL	4, 2, 5	3
26K5728	26K5722	5264	73GB 15K SAS (simple swap)	SL	4, 2, 5	3
26K5729	26K5723	5265	146GB 15K SAS (simple swap)	SL	4, 2, 5	3
26K5739	26K5733	5266	73GB 10K SAS (simple swap)	SL	4, 2, 5	3
26K5740	26K5734	5267	146GB 10K SAS (simple swap)	SL	4, 2, 5	3
26K5741	26K5735	5268	300GB 10K SAS (simple swap)	SL	4, 2, 5	3
SAS HDDs						
40K1077	40K1045	5175	73GB 10K SAS HDD	SL	4, 2, 5	3
40K1078	40K1046	5176	146GB 10K SAS HDD	SL	4, 2, 5	3
40K1079	40K1047	5177	300GB 10K SAS HDD	SL	4, 2, 5	3
40K1080	40K1048	5186	36GB 15K SAS	SL	4, 2, 5	3
40K1081	40K1049	5178	73GB 15K SAS HDD	SL	4, 2, 5	3
40K1082	40K1050	5179	146GB 15K SAS HDD	SL	4, 2, 5	3

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
Optical Drives						
39M6344	32R2905	4139	48X/32X/48X/16X Max CD-RW/DVD-ROM Combo Drive	HH	1,2	2
39M6345	32R2906	4140	IBM Multi-Burner Plus	HH	1,2	2
22P1999	22P1999	4149	16X RAM-Read DVD-ROM IDE Drive	HH	1,2	2
13N1545	32R2905	4151	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	HH	1,2	2

Notes:

1. A maximum of three HDDs for SAS or SCSI models or four SATA HDDs in SATA models are supported. The third SAS or SCSI and the fourth SATA HDD must have a optional tray. The fourth SATA HDDs must come with a ServerRAID 7t card, and all four SATA cables must be connected to the ServerRAID 7t card.
2. HostRAID does not support the ServerRAID 7t card in SATA models.

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Bay	Form Factor	Height	Front Access	Usage
1	5.25	HH	Yes	Std. Optical
2	5.25	HH	Yes	Optical/Tape /SATA HDD/ SCSI HDD/ SAS HDD
3	3.5	SL	Yes	FDD / SATA HDD
4	3.5	SL	Yes	SATA HDD / SCSI HDD/ SAS HDD
5	3.5	SL	No	SATA HDD / SCSI HDD/ SAS HDD
6	3.5	SL	No	No Usage. Prohibited by a bar.

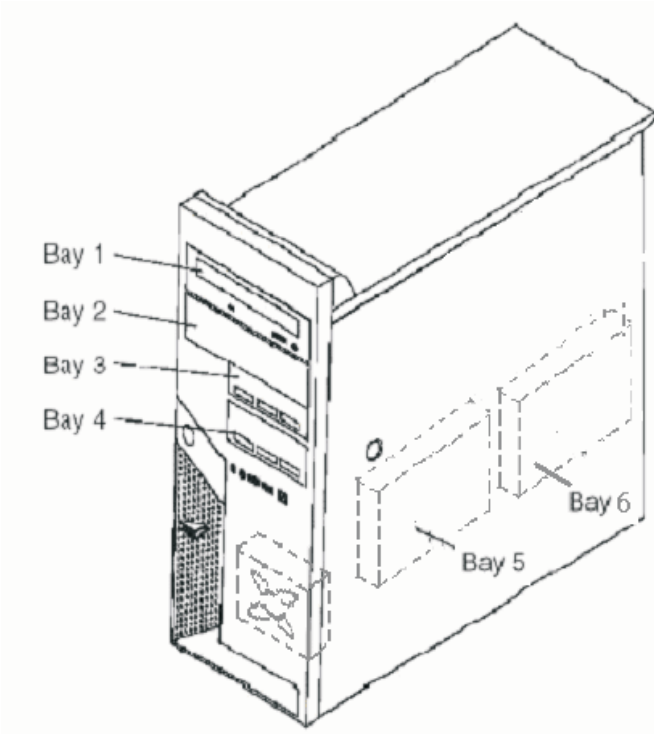

Figure 2. M Pro 6218 front view

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IntelliStation M Pro 6218 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported
Storage Controllers						
13N2252	13N2249	1656	Ultra320 SCSI Controller 2	Half	64-bit/ 133MHz	4
71P8651	71P8648	1651	ServeRAID 7t SATA Controller	Half	64-bit/ 64MHz	4
Networking						
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	Half	32-bit/ 33MHz	4
31P9605	39Y6105	1512	PRO/1000 MT Server Adapter by Intel	Half	64-bit/ 133MHz	4
73P3505	39Y6098	1508	NetXtreme 1000 Express Ethernet Adapter	Half	PCI E 1X	1
73P4105	39Y6079	1510	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	4

IntelliStation M Pro 6218 power and accessories

SBB Number	Option Number	Description
		Uninterruptible Power Supply (UPS)
-	2130R4X	IBM UPS 1000T HV
-	2130R8X	IBM UPS 1000T JV
-	2130R3X	IBM UPS 1000T LV
-	2130R6X	IBM UPS 1500T HV
-	2130R9X	IBM UPS 1500T JV
-	2130R5X	IBM UPS 1500T LV
-	2130R2X	IBM UPS 750T HV
-	2130R7X	IBM UPS 750T JV
-	2130R1X	IBM UPS 750T LV
		Power Distribution Units
-	-	-

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SBB Number	Option Number	Feature Code	Description
Monitors			
25R4183	49387NX	7601	IBM C117 17" (15.9inch VIS) FST CRT
25R4186	494215X	7604	IBM T115 15" TFT LCD
25R4188	494317X	7606	IBM T117 17" TFT LCD
25R4190	494419X	7608	IBM T119 19" TFT LCD
25R4192	494520X	7610	IBM T120 20.1" TFT LCD
Keyboard and Mouse			
-	40K5372	-	IBM USB UltraNav Keyboard - USB
-	90P0777	-	IBM Enhanced Performance Keyboard - USB
-	40K9202	-	IBM SpacePilot 3D Controller

IntelliStation M Pro 6218 tape options

SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
39M5664	39M5659	5385	IBM DLTV4 Tape Drive	-	-	-	-
		Tape Autoloaders					
-	-	-	-	-	-	-	-
		External Tape Libraries					
-	-	-	-	-	-	-	-
		External Tape Enclosures					
-	-	-	-	-	-	-	-
Associated Options							
-	-	-	-	-	-	-	-

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SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported[1]	Storage Interface	Form Factor	Ext Tape Encl
49P3228	48P7042	5354	20/40GB TR7 Internal IDE Tape Drive	2	Std. IDE	89mm (3.5in) SL or 133mm (5.25in) HH	-
32P8861	00N7991	5353	20/40GB DDS/4 4mm Internal Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	0034B0X
71P9176	71P9145	5355	36/72GB DDS/5 Internal SCSI Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	-
71P9166	59P6746	5359	80/160GB VXA-2 SCSI Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6717	-	100/200GB LTO Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6719	-	40/80GB DLT VS80 Internal SCSI Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6745	-	80/160GB DLT VS160 SCSI Tape Drive	2	Ultra160 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6736	-	160/320GB SDLT SCSI Tape Drive Option	-	Ultra2 (16-bit)	133mm (5.25in) FH	0034B0X
-	59P6744	-	200/400GB LTO Full-High Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	-
-	25R0005	-	Half High LTO Gen 2 Tape Drive	-	Ultra160 SCSI	133mm (5.25in) HH	-
-	25R0012	-	400/800GB LTO Generation 3 SCSI Tape Drive	-	Ultra160	133mm (5.25in) FH	-
Tape Autoloaders							
-	36232LX	-	200/400GB 2U LTO Generation 2 Tape Autoloader 3623 Model 2LX	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	1.28TB/2.56TB 36232SX SDLT320 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
External Tape Libraries							
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-
Associated Options							
-	00N7956	-	68-pin External Multimode LVD/SE SCSI Terminator	-	LVD/SE (16-bit)	External	-
-	-	-	-	-	-	-	-

Note: The integrated SCSI controller is available on SATA models for tape support only (internal or external).

Note: Additional tape drive and tape library attributes, requirements and options can be found in the Tape Drive Attributes and Tape Library Attributes appendices, respectively.

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Chapter 2. IntelliStation Z Pro 6223

IntelliStation Z Pro (6223) provides six USB ports (two front/four rear), two IEEE 1394A ports (one front/one rear), two 9-pin serial ports and one 25-pin parallel port. A keyboard and mouse is also provided. A diskette drive is not provided.

Table 4. IntelliStation Z Pro 6223 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Video Adapter (PCIe)	Form Factor[5]	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8, 9]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[10]
6223-12Y	-	3.4/800 1MB L2	1/2	1GB/16GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	SATA	Fixed SATA	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-14Y	Jul 1	3.4/800 1MB L2	1/2	1GB/16GB	NVIDIA Quadro FX 3400	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-26Y	-	3.6/800 1MB L2	1/2	1GB/16GB	ATI FireGL V7100 PCIExpress	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-27Y	Jul 25	3.6/800 1MB L2	2/2	2GB/16GB	3DLabs Wildcat Realizm 800	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-31Y	-	3.0/800 2MB L2	1/2	1GB/16GB	NVIDIA Quadro NVS 280 PCIExpress	Mini-tower	1GB	SATA	Fixed SATA	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-41Y	-	3.2/800 2MB L2	1/2	1GB/16GB	NVIDIA Quadro NVS 280 PCIExpress	Mini-tower	1GB	SATA	Fixed SATA	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-42Y	-	3.2/800 2MB L2	1/2	1GB/16GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-43Y	-	3.2/800 2MB L2	2/2	2GB/16GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	SATA	Fixed SATA	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-51Y	-	3.4/800 2MB L2	1/2	2GB/16GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	SATA	Fixed SATA	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5

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Table 4. IntelliStation Z Pro 6223 At-A-Glance (continued)

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Video Adapter (PCIe)	Form Factor[5]	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8, 9]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[10]
6223-52Y	-	3.4/800 2MB L2	2/2	1GB/16GB	3DLabs Wildcat Realizm 800	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-53Y[11]	-	3.4/800 2MB L2	2/2	2GB/16GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	SATA	Fixed SATA	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-64Y	-	3.6/800 2MB L2	2/2	2GB/16GB	ATI FireGL V7100 PCIExpress	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-68Y[11]	-	3.6/800 2MB L2	2/2	2GB/16GB	3DLabs Wildcat Realizm 800	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-72Y	-	3.8/800 2MB L2	1/2	2GB/16GB	NVIDIA Quadro FX 1400 PCIExpress	Mini-tower	1GB	SATA	Simple-Swap	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-73Y	-	3.8/800 2MB L2	1/2	2GB/16GB	ATI FireGL V7100 PCIExpress	Mini-tower	1GB	SATA	Simple-Swap	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-75Y	-	3.8/800 2MB L2	1/2	2GB/16GB	NVIDIA Quadro NVS 280 PCIExpress	Mini-tower	1GB	SATA	Simple-Swap	80GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-76Y	-	3.8/800 2MB L2	1/2	2GB/16GB	ATI FireGL V7100 PCIExpress	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-78Y	-	Dual 3.8/800 2MB L2	2/2	2GB/16GB	3DLabs Wildcat Realizm 800	Mini-tower	1GB	U320	Fixed SCSI	73GB/587.2GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-3BY	-	3.0/800 2MB L2	1/2	1GB/8GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	SATA	Fixed SATA	160GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-3GY	-	3.0/800 2MB L2	1/2	1GB/8GB	-	Mini-tower	1GB	SATA	Fixed SATA	160GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5
6223-4BY	-	3.2/800 2MB L2	1/2	2GB/8GB	NVIDIA Quadro NVS 285	Mini-tower	1GB	SATA	Fixed SATA	160GB/1000GB	CD-RW/DVD (48x-32x-48x-16x)	6/4	6/5

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Table 4. IntelliStation Z Pro 6223 At-A-Glance (continued)

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Video Adapter (PCIe)	Form Factor[5]	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8, 9]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[10]
6223-5BY	-	3.4/800 2MB L2	1 / 2	2GB/ 8GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	U320	Fixed SATA	73GB/ 587.3GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-5CY	-	Dual 3.4/800 2MB L2	1 / 2	2GB/ 8GB	NVIDIA Quadro NVS 285	Mini-tower	1GB	U320	Fixed SCSI	73GB/ 587.3GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-5GY	-	3.4/800 2MB L2	1 / 2	1GB/ 8GB	-	Mini-tower	1GB	SATA	Fixed SATA	160GB/ 1000GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-6BY	-	3.6/800 2MB L2	1 / 2	2GB/ 8GB	NVIDIA Quadro NVS 285	Mini-tower	1GB	U320	Fixed SCSI	73GB/ 587.3GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-6CY	-	3.6/800 2MB L2	1 / 2	2GB/ 8GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	SATA	Fixed SATA	160GB/ 1000GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-6DY	-	Dual 3.6/800 2MB L2	2 / 2	2GB/ 8GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	U320	Fixed SCSI	73GB/ 587.3GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-6GY	-	3.0/800 2MB L2	1 / 2	2GB/ 16GB	-	Mini-tower	1GB	SATA	Fixed SATA	160GB/ 1000GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-7BY	-	3.8/800 2MB L2	1 / 2	2GB/ 8GB	NVIDIA Quadro FX 3500	Mini-tower	1GB	U320	Fixed SCSI	73GB/ 587.3GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-7CY	-	3.8/800 2MB L2	1 / 2	2GB/ 8GB	NVIDIA Quadro FX 3500	Mini-tower	1GB	SATA	Fixed SATA	160GB/ 1000GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-7DY	-	Dual 3.8/800 2MB L2	2 / 2	2GB/ 8GB	NVIDIA Quadro FX 4500	Mini-tower	1GB	SATA	Fixed SATA	160GB/ 1000GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-7GY	-	3.6/800 2MB L2	1 / 2	1GB/ 8GB	-	Mini-tower	1GB	SATA	Fixed SATA	160GB/ 1000GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5
6223-E6Y	-	3.6/800 2MB L2	1 / 2	2GB/ 8GB	NVIDIA Quadro FX 1400	Mini-tower	1GB	U320	Fixed SATA	160GB/ 1000GB	CD-RW/DVD (48x-32x-48x-16x)	6 / 4	6 / 5

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Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model number which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 6223-10Y is 6223-10U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.
2. Not available from IBM after this date. Business Partner Inventory may be available.
3. Intel Xeon processor with Extended Memory 64 Technology (EM64T), L2 cache and an 800MHz (quad-pumped) Front Side Bus (FSB).
4. High-speed, two-way interleaved PC2-3200 RDIMMs. Maximum capacity requires replacing the standard DIMMs. To achieve 16 GB of system memory, when 4 GB PC2-3200 ECC DDR2 RDIMM memory becomes available, add a 4 GB PC2-3200 ECCDDR2 SDRAM RDIMM in the first four slots.
5. A 5U tower-to-rack conversion kit is available. See 'Power and Accessories.'
6. Broadcom 5721 copper gigabit Ethernet controller with Wake-on-LAN support. Wake-on-LAN is not supported if systems are improperly shut down.
7. Integrated dual-channel Ultra320 SCSI storage controller on SCSI models, two SATA controllers on SATA models supporting one SATA HDD per controller. Both the SCSI and SATA integrated controllers support Integrated ServeRAID-7e (RAID-0 and RAID-1).
8. Maximum storage capacity for SATA models is based on four 250GB SATA HDDs which requires installation of the optional ServeRAID-7t RAID controller and replacement of the standard HDD. Standard configuration will support two SATA HDDs.
9. Maximum storage capacity for SCSI models is based on four 146.8GB HDDs.
10. The standard graphics adapter occupies the PCI Express slot. Slot 2 will not be available when using the 3Dlabs Wildcat Realizm 800 graphics adapter.
11. Ships with Red Hat Enterprise Linux WS 3 License. Other models ship preloaded with Microsoft Windows XP Professional.

IntelliStation Z Pro 6223 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
39M4300	40K2515	0339	3.0GHz 800MHz 2MB L2 Cache	31Y, 3BY, 3GY, 6GY
39M4054	40K2516	0330	3.2GHz 800MHz 2MB L2 Cache	41Y, 42Y,43Y,4BY
39M4057	40K2517	0333	3.4GHz 800MHz 2MB L2 Cache	12Y, 14Y, 51Y, 52Y, 53Y, 5BY, 5CY, 5GY
39M4069	40K2518	0286	3.6GHz 800MHz 2MB L2 Cache	26Y, 27Y, 64Y, 68Y, 6 BY, 6CY, 6DY, 7GY, E6Y
39Y9910	40K2519	0653	3.8GHz 800MHz 2MB L2 Cache	72Y, 73Y, 75Y, 76Y, 78Y, 7BY, 7CY, 7DY
39Y8713	13N0678	1221	3.8GHz/800MHz-2MB	72Y, 73Y, 75Y, 76Y, 78Y, 7BY, 7CY, 7DY
Note: Z Pro (6223) processor options support Intel's Extended Memory 64 Technology (EM64T).				

Notes:

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

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Table 5. Additional Processor

SBB Number	Option Number	Feature Code	Processor Options	SMP Support
39Y9911	13N0678	0446	Dual 3.8GHz 800MHz 2MB L2 Cache	-
39Y8711	40K2517	1219	Dual 3.4GHz/800MHz-2MB	-
39Y8712	40K2518	1220	Dual 3.6GHz/800MHz-2MB	-

IntelliStation Z Pro 6223 memory options

SBB Number[1]	Option Number	Feature Code	Memory Options
90P0870	-	0501	256MB DDR-II SDRAM DIMM (non chip-kill)
-	73P3523	-	512MB (2x256MB) PC2-3200 ECC DDR2 RDIMM Kit
90P1218	-	0502	512MB DDR-II SDRAM DIMM (non chip-kill)
39M5816	39M5818	0541	1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit
	39M5821		1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit[2]
73P2874	73P2866	0504	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
	39M5809		2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit[2]
73P2875	-	0512	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
	39M5812		4GB (2x2GB) PC2-3200 ECC DDR2 RDIMM Kit[2, 3]
73P4794	-	0505	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill)
	39M5815		4GB (2x2GB) PC2-3200 Single Rank ECC DDR2 RDIMM Kit
Note: 8GB of memory is supported via six DIMM slots with currently available options. Z Pro (6223) supports 16GB of memory using the 4GB Single Rank DIMM. Due to two-way interleaving, installation of memory DIMMs in matched pairs is required beginning with DIMM slots 1 and 2, then 3 and 4, then 5 and 6. Memory must be installed in pairs.			

Notes:
1. Quantity two of each SBB PN must be ordered to equal its corresponding option.
2. Supports Chipkill. Mixing Chipkill DIMMs with nonChipkill DIMMs will disable all Chipkill function.
3. 2GB DIMMs can only be installed in slots 1, 2, 3 and 4. If mixing 2GB DIMMs with other size DIMMs, only two 2GB DIMMs can be installed and they must be installed in slots 1 and 2.

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Table 6. Standard Memory Configuration

Model	Std. DIMM Configuration
10Y	2 x 256MB PC2-3200 ECC DDR2 SDRAM RDIMM
11Y, 12Y, 14Y, 2xY except 27Y, 31Y, 41Y, 42Y, 52Y, 3GY, 6GY	2 x 512MB PC2-3200 ECC DDR2 SDRAM RDIMM
43Y, 51Y, 53Y, 6xY, 7xY, 3EY	2 x 1GB PC2-3200 ECC DDR2 SDRAM RDIMM

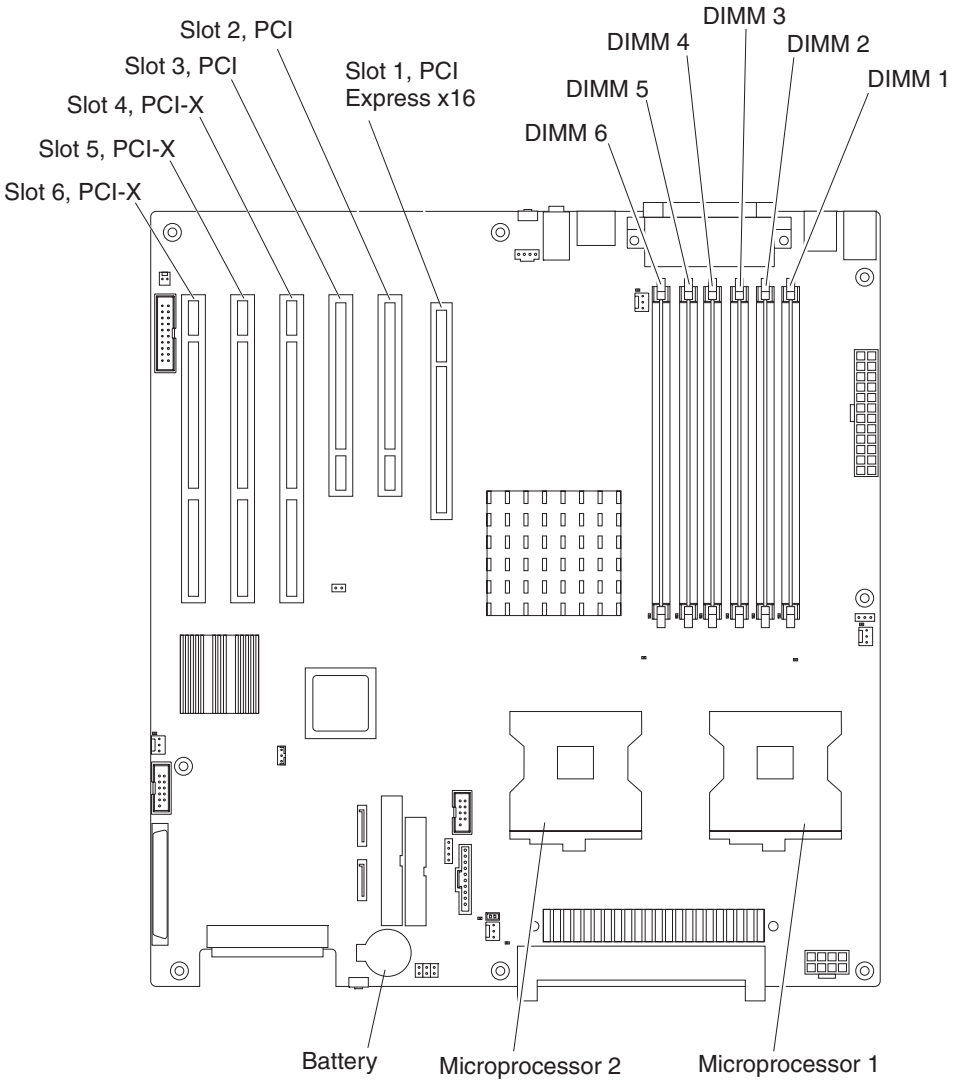

Figure 3. Z Pro 6223 System Board

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IntelliStation Z Pro 6223 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty[2]
Diskette Drives						
23K4959	05K9276	5300	1.44MB 1 inch black	-	-	-
0005309	40K1692	5309	IBM External USB Floppy Drive	-	-	-
SATA HHDs[2]						
40K6865	40K6864	5154	80GB 7.2K rpm SATA HDD	-	-	-
40K6869	40K6868	5155	160GB 7.2K rpm SATA HDD	-	-	-
39M4535	39M4504	5294	160GB SATA HDD	-	-	-
39M4537	39M4508	5295	250GB SATA HDD	-	-	-
Fixed (Nonhot-swap) Ultra320 HDDs						
40K1061	40K1029	5157	73G 10K rpm SCSI U320 (Non-Hot-Swap)	SL	2, 4, 5, 6	4
40K1062	40K1030	5182	146GB 10K rpm SCSI U320 (Non-Hot-Swap)	SL	2, 4, 5, 6	4
40K1063	40K1031	5183	300GB 10K U320 SCSI NHS	SL	2, 4, 5, 6	4
40K1064	40K1032	5184	36GB 15K U320 SCSI NHS	SL	2, 4, 5, 6	4
40K1065	40K1033	5174	73GB 15K U320 SCSI NHS	SL	2, 4, 5, 6	4
40K1066	40K1034	5185	146GB 15K U320 SCSI NHS	SL	2, 4, 5, 6	4
Optical Devices						
22P1999	22P1999	4149	16X RAM-Read DVD-ROM IDE Drive	HH	1, 2	2
		Associated Options				
02R3451	00N8078	5400	250MB IDE Internal Zip Drive	-	-	-

Notes:
1. May require removing standard devices.
2. Four SATA HDDs are supported with the installation of the optional ServeRAID-7t controller. Two HDDs are supported in the standard configuration.
3. Mixing SATA and SCSI HDDs is not supported.
4. Installation of this HDD option will require removing the simple-swap tray that ships with the HDD.

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IntelliStation Z Pro 6223 Bay Usage

Bay	Form Factor	Height	Front Access	Usage
1	133mm (5.25in)	HH	Yes	Optical
2	133mm (5.25in)	HH	Yes	Optical/Tape/Zip
3	89mm (3.25in)	SL	Yes	FDD/HDD
4 ... 6	89mm (3.25in)	SL	No	HDD[1]
Note: HDDs are installed in the following order: bays 6, 5 and 4.				

Notes:

1. Standard HDD is installed in bay 6.

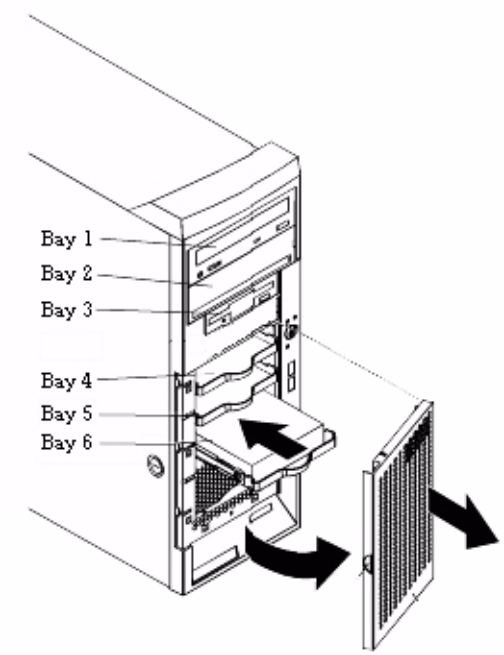

Figure 4. Z Pro 6223 Front View

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IntelliStation Z Pro 6223 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported
Storage Controllers[1]						
39R8797	39R8793	1682	ServeRAID-6i+ Integrated RAID Controller	Half	64-bit/ 133MHz	5
39R8809	39R8805	1683	ServeRAID-7t SATA Controller	Half	64-bit/ 66MHz	4 ... 6
71P8614	71P8594	1652	Single Channel Ultra320 SCSI Controller[2]	Half	64-bit/ 66MHz	4 ... 6
39R8752	39R8743	1680	Ultra320 SCSI Controller 2[2]	Half	64-bit/ 133MHz	4 ... 6
Networking						
32P9298	31P6401	1503	NetXtreme Gigabit Dual Port Adapter	Half	64-bit/ 133MHz	4 ... 6
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	-	-	4 ... 6
39Y6096	39Y6093	1489	NetXtreme 1000 T + Dual Port Ethernet Adapter	-	-	4 ... 6
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter	Half	64-bit/ 133MHz	-
Other I/O						
-	-	-	-	-	-	-

Notes:
1. Currently only one type of RAID is supported at a time; for example, ServeRAID-7e (RAID-0 or RAID-1 with integrated controller), ServeRAID-4Lx or ServeRAID-7t, etc.
2. Support is for tape only. Tape support requires the PCI slot in which the adapter is installed be defined as the boot device slot via the BIOS setup utility.

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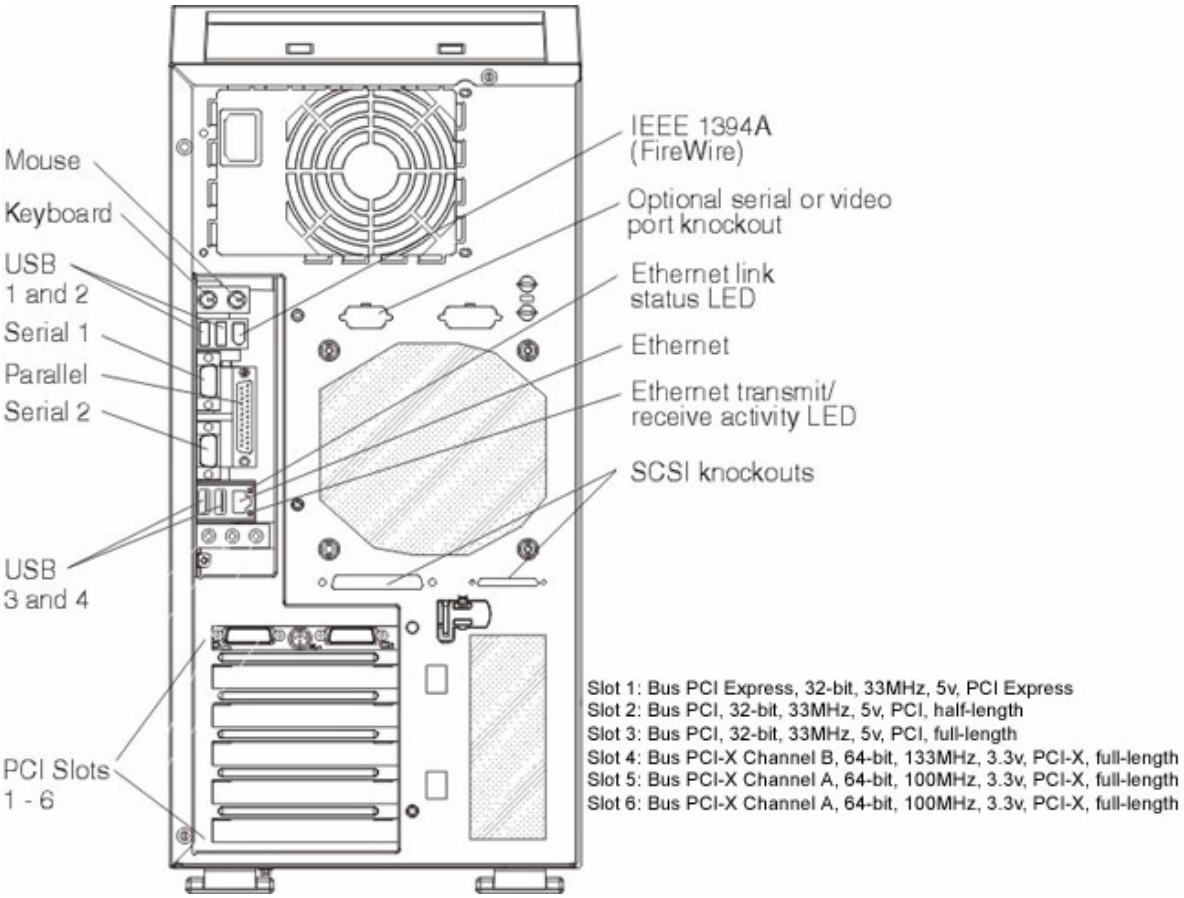

Figure 5. Z Pro 6223 Rear View

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IntelliStation Z Pro 6223 power and accessories

Option Number	Description
Power[1]	
-	-
Tower Uninterruptible Power Supply (UPS)	
2130R1X	UPS750TLV
2130R2X	UPS750THV
2130R3X	UPS1000TLV
2130R4X	UPS1000THV
2130R5X	UPS1500TLV
2130R6X	UPS1500THV
2130R7X	UPS750TJV
2130R8X	UPS1000TJV
2130R9X	UPS1500TJV
Power Distribution Units	
39Y8938	30amp/125V Front-end PDU with Nema L5-30P connector
39Y8939	30amp/250V Front-end PDU with Nema L6-30P connector
39Y8999	32A/230V 3P w/IEC309 3P+N+Gnd connector
39Y8934	32amp/250V Front-end PDU with IEC309 32A 2P+Gnd connector
73P5855	60A/208V 1P w/IEC309 2P+Gnd Conn
39Y9000	60A/208V 3P w/IEC309 3P+Gnd Conn
39Y8940	60amp/250V Front-end PDU with IEC309 60A 2P+N+Gnd connector
73P5856	63A/320V 1P w/IEC309 P+N+Gnd Conn
39Y8935	63amp/250V Front-end PDU with IEC309 32A 2P+Gnd connector
39Y8905	DPI Nema Rack PDU
39Y8951	DPI Universal Rack PDU w/NEMA L5-20P & L6-2P (US cord)
Rack-mount Uninterruptible Power Supply (UPS)	
32P1020	APC 2U Smart-UPS 1400RMB
32P1022	APC 2U Smart-UPS 1400RMiB

Notes:

1. IntelliStation Z Pro 6223 includes a 530w voltage-sensing power supply and a single line cord.

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SBB Number	Option Number	SBB Number	Description
Racks			
-	93061RX	-	NetBay11 Standard Rack Cabinet
-	93084XX	-	NetBay42 Enterprise Expansion Rack Cabinet (EX)
-	93084RX	-	NetBay42 Enterprise Rack Cabinet
-	9306250	-	NetBay25 Standard Rack Cabinet
-	9306420	-	NetBay42 Standard Rack Cabinet
-	9306421	-	NetBay42 Standard Expansion Rack Cabinet
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet
Rack/Tower Conversion Kits			
-	13N2455	-	5Ux20D Tower-to-Rack Kit
Rack Console Connectivity			
-	17351LX	-	1x8 Local Console Manager
-	17352LX	-	2x16 Local Console Manager
Monitors			
25R4186	494215X	7604	T115 15in TFT LCD
25R4188	494317X	7606	T117 17in TFT LCD
25R4190	494419X	7608	T119 19in TFT LCD
Keyboard and Mouse[1]			
-	31P8950	-	USB Keyboard with UltraNav - US English
18R9856	73P2620	8881	USB Keyboard Enhanced Performance Keyboard - US English
0008660	40K5372	8660	USB Travel Keyboard with UltraNav - US English
-	25R6942	-	Enhanced Performance Wireless Keyboard & Optical Mouse - USB
40K9491	40K9200	8912	USB Optical Wheel Mouse
-	33L3252	-	SpaceBall 3D Input Device
-	40K9202	-	SpacePilot 3D Controller
Other Accessories			
-	-	-	-

Notes:

1. IntelliStation Z Pro 6223 ships standard with an IBM 104-key keyboard and three-button mouse.

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IntelliStation Z Pro 6223 tape options

SBB Number	Option Number	Tape Drives	Bays Supported[1]	Interface (bit)	Form Factor	Ext Tape Encl
-	-	-	-	-	-	-
External Tape Enclosures						
-	4559HHX	Half-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (2.52in tall)	-
Associated Options						
-	00N7956	68-pin External Multimode LVD/SE SCSI Terminator	-	LVD/SE (16-bit)	External	4559HHX
-	-	-	-	-	-	-

Note: The integrated SCSI controller is available on SATA models for tape support only (internal or external).

Note: Additional tape drive and tape library attributes, requirements and options can be found in the Tape Drive Attributes and Tape Library Attributes appendices, respectively.

Notes:
1. Installation may require removing a standard device.

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Chapter 3. IntelliStation Z Pro 9228

Table 7. IntelliStation Z Pro 9228 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)[2]	Memory (Std/Max)[3]	Video Adapter (PCIe)[4]	Form Factor	Integrated Ethernet	Storage Controller[5]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
9228-62Y	2.0/1333 - 4MB L2	1/2	1GB/ 32GB	NVIDIA Quadro FX 550	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	DVD-ROM	7/5	6/5
9228-72Y	2.33/ 1333- 4MB L2	1/2	1GB/ 32GB	NVIDIA Quadro NVS285 128MB	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	DVD-ROM	7/5	6/5
9228-74Y	2.33/ 1333- 4MB L2	1/2	1GB/ 32GB	NVIDIA Quadro FX 550	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	DVD-ROM	7/5	6/5
9228-76Y	2.33/ 1333- 4MB L2	1/2	1GB/ 32GB	NVIDIA Quadro FX 1500	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	DVD-ROM	7/5	6/5
9228-82Y	2.66/ 1333- 4MB L2	1/2	4GB/ 32GB	NVIDIA Quadro FX 3500	Mini-Tower	1GB	SAS	Simple-Swap	73GB/	DVD-ROM	7/5	6/5
9228-84Y	2.66/ 1333- 4MB L2	1/2	4GB/ 32GB	NVIDIA Quadro FX 1500	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/5
9228-86Y	2.66/ 1333- 4MB L2	1/2	4GB/ 32GB	NVIDIA Quadro NVS285 128MB	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/5
9228-8GY	2.66/ 1333- 4MB L2	1/2	2GB	-	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/6
9228-92Y	3.0/ 1333- 4MB L2	1/2	4GB/ 32GB	NVIDIA Quadro FX 1500	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/5

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Table 7. IntelliStation Z Pro 9228 At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)[2]	Memory (Std/Max)[3]	Video Adapter (PCIe)[4]	Form Factor	Integrated Ethernet	Storage Controller[5]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
9228-94Y	3.0/ 1333-4MB L2	1/2	4GB/ 32GB	NVIDIA Quadro FX 3500	Mini-Tower	1GB	SAS	Simple-Swap	73GB/	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/5
9228-96Y	2x3.0/ 1333-4MB L2	2/2	4GB/ 32GB	NVIDIA Quadro FX 3500	Mini-Tower	1GB	SAS	Fixed	73GB/	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/5
9228-98Y	2x3.0/ 1333-4MB L2	2/2	4GB/ 32GB	NVIDIA Quadro FX 4500	Mini-Tower	1GB	SAS	Simple-Swap	73GB/	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/4
9228-9GY	3.0/ 1333-4MB L2	1/2	2GB	-	Mini-Tower	1GB	SATA	Simple-Swap	160GB /	48X/32X/ 48X/16X CD-RW/DVD	7/5	6/6

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 9228-96Y is 9228-96U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. If two CPUs are installed, they must be the same speed.
3. Maximum memory may require replacement of standard memory with optional maximum memory modules.
4. The NVIDIA Quadro FX 3500 and NVIDIA Quadro FX 4500 require external PCI Express power direct from the power supply. Slot 2 will not be available when using the NVIDIA Quadro FX 4500 graphics adapter.
5. Mixing of SAS and SATA HDDs is not supported.

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IntelliStation Z Pro 9228 processor options

SBB Number	Option Number	Feature Code	Processor Options[1, 2]	SMP Support
42D1378	40K1243	1321	Intel Xeon Processor 5130	62Y
42D1376	40K1244	1320	Intel Xeon Processor 5140	72Y, 74Y, 76Y
42D1374	40K1245	1319	Intel Xeon Processor 5150	82Y, 84Y, 86Y
42D1370	40K1246	1318	Intel Xeon Processor 5160	92Y, 94Y, 96Y, 98Y

Notes:

1. If 1 CPU only, install in CPU1 location
2. When installing CPU2, install CPU2 VRM module also.

IntelliStation Z Pro 9228 memory options

SBB Number	Option Number	Feature Code	Description
			Memory DIMMs[1, 2]
39M5780	39M5782	0546	512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5783	39M5785	0542	1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5789	39M5791	0544	2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5795	39M5797	0556	4GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz

Notes:

1. DIMMs must be populated in pairs and should be populated from largest to smallest i.e.; populate 2GB then 1GB and then 512 MB (1 pair per branch) in the following order: DIMM1 and DIMM 3, DIMM 5 and DIMM 7, DIMM 2 and DIMM 4, and DIMM 6 and DIMM 8. Populating DIMM pairs in this order will maximize performance and also ensure that the DIMM in each channel gets populated first.
2. Each DIMM in the DIMM pair must be identical (same size and speed).

Table 8. Standard Memory Configuration

Model	Std. DIMM Configuration
62Y	(2x512MB) Xeon 5130 2.0GHz/1333MHz-4MB DC
72Y, 74Y, 76Y	(2x512MB) Xeon 5140 2.33GHz/1333MHz-4MB DC
76Y, 8GY, 84Y, 86Y, 9GY	(4x512MB) Xeon 5150 2.66GHz/1333MHz-4MB DC
92Y, 94Y, 96Y, 98Y	(4x512MB) Xeon 5160 3.0GHz/1333MHz-4MB DC

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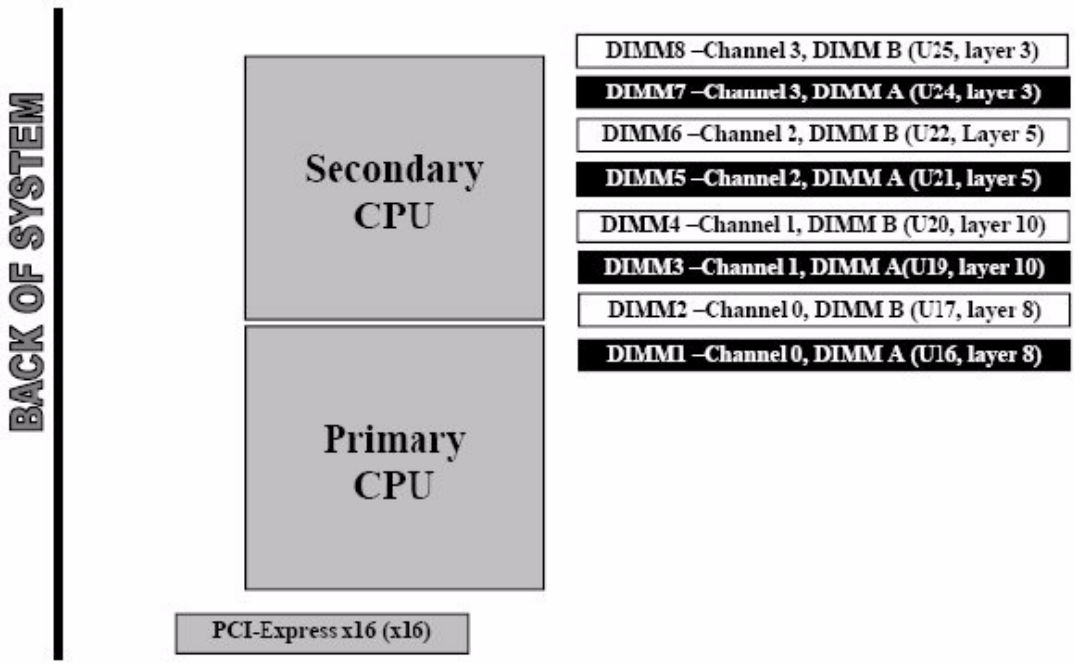
BACK OF SYSTEM
Secondary CPU
Primary CPU
PCI-Express x16 (x16)
DIMM8 –Channel 3, DIMM B (U25, layer 3)
DIMM7 –Channel 3, DIMM A (U24, layer 3)
DIMM6 –Channel 2, DIMM B (U22, Layer 5)
DIMM5 –Channel 2, DIMM A (U21, layer 5)
DIMM4 –Channel 1, DIMM B (U20, layer 10)
DIMM3 –Channel 1, DIMM A(U19, layer 10)
DIMM2 –Channel 0, DIMM B (U17, layer 8)
DIMM1 –Channel 0, DIMM A (U16, layer 8)

Figure 6. Z Pro 9228 memory DIMMs

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IntelliStation Z Pro 9228 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
Diskette Drives						
0005309	40K1692	5309	1.44MB black		3	
Simple-Swap SATA Hard Drives						
39M4501	39M4500	5290	80GB 7200-rpm Simple-swap SATA II HDD	-	-	-
39M4505	39M4504	5291	160GB 7200-rpm Simple-swap SATA II HDD	-	-	-
39M4509	39M4508	5292	250GB 7200-rpm Simple-swap SATA II HDD	-	-	-
SAS Hard Drives						
-	-	-	-	-	-	-
Associated Options						
-	-	-	-	-	-	-
Optical Drives						
39M6345	32R2906	4140	IBM DVD Multi-Burner Plus Drive	HH	-	-
39M6344	32R2905	4139	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	HH	-	-

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Bay	Form Factor	Height	Front Access	Usage
1	5.25 inch	-	N/A	CD ROM
2	5.25 inch	-	N/A	CD/Tape
3	Diskette Drive	-	N/A	Diskette
4	3.5 inch	SL	Y	HDD
5	3.5 inch	SL	Y	HDD
6	3.5 inch	SL	Y	HDD
7	3.5 inch	SL	Y	HDD

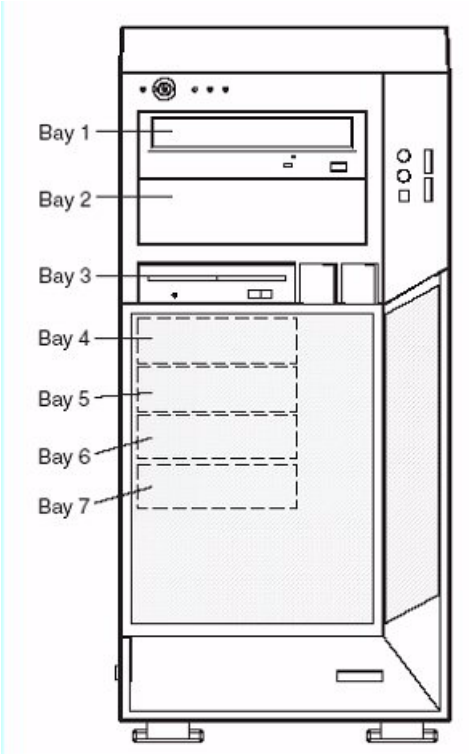

Figure 7. Z Pro 9228 front view

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IntelliStation Z Pro 9228 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Storage Controllers								
39R8809	39R8805	1683	IBM ServeRAID 7t SATA Controller[2]	Half	64-bit/ 66MHz	4,5	-	2
Networking								
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	4,5	-	2
39Y6108	39Y6105	1488	PRO/1000 GT Server Adapter by Intel	Half	64-bit/ 133MHz	4,5	-	2
Other I/O								
-	-	-	-	-	-	-	-	-

Notes:

1. The SAS daughter card is required for all SAS configurations (non-RAID or RAID) when the SAS HBA controller is not installed in an expansion slot.
2. The SAS daughter card is required for SATA RAID configurations when the ServeRAID 7t adapter is not installed in an expansion slot.

SLOT/device	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI? (Hotswap)	Slot length
PCI Slot 1	PCIe x16/75W	PCI Express	3.3	2.5 Ghz	16 Lanes	N	Full
PCI Slot 2	PCIe x8 (4,1)	PCI Express	3.3	2.5 Ghz	4/0 lanes	N	Full
PCI Slot 3	PCIe x16 (x4,1)/75W	PCI Express	3.3	2.5 Ghz	4/8 lanes	N	Full
PCI Slot 4	PCI-X	PCI-X	3.3	133	64	N	Full
PCI Slot 5	PCI-X	PCI-X	3.3	133	64	N	Full
PCI Slot 6	PCI	PCI	5	33	32	N	Full

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IntelliStation Z Pro 9228 power and accessories

SBB Number	Option Number	Feature Code	Description
			Power Supplies and Power Cord Options
			Power Distribution Units
-	32P1751	-	30amp/125V Front-end PDU with NEMA L5-30P connector
-	32P1766	-	30amp/250V Front-end PDU with NEMA L6-30P connector
-	73P5844	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
39Y8000	73P5847	6071	60A/208V 3P w/IEC309 3P+Gnd Conn
-	32P1767	-	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
-	32P1754	-	63amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
-	26K4246	-	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
-	26K4241	-	DPI 32A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4245	-	DPI 32A Three Phase C13 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
-	26K4242	-	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	26K4243	-	DPI 63A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	32P1761	-	DPI NEMA Rack PDU
-	32P1736	-	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
			Uninterruptible Power Supply (UPS)
-	21309TX	-	IBM UPS 1500T JV
			Rack/Tower Conversion Kits
39Y7960	39M2895	3756	IBM USB Conversion Option
0004393	39Y9707	4393	5Ux20 T/R Conversion Kit
			Rack Console Connectivity
-	09N4290	-	1x4 port Console Switch
-	09N4291	-	2x8 port Console Switch
-	17235RX	-	IBM Rack Keyboard Tray
-	17352GX	-	IBM Global 2x16 Console Manager
-	17352LX	-	IBM 2x16 Local Console Manager
-	17354GX	-	IBM Global 4x16 Console Manager
-	1735L04	-	NetBAY Local Console Manager
-	1735R16	-	NetBAY Remote Console Manager
			Racks
-	93061RX	-	NetBay11 Standard Rack Cabinet
-	93084XX	-	NetBay42 Enterprise Expansion Rack Cabinet (EX)
-	93072RX	-	IBM 25U Standard Rack

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SBB Number	Option Number	Feature Code	Description
-	93072SX	-	IBM 25U Standard Rack
-	93074EX	-	IBM 42U Standard Rack Extension
-	93074RX	-	IBM 42U Standard Rack
-	93074SX	-	IBM 42U Standard Rack
-	93074XX	-	IBM 42U Standard Rack Extension
-	930842E	-	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
-	930842S	-	NetBAY42 Enterprise Rack Cabinet
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
Monitors			
-	4938-7xx	-	IBM C117 17" (15.9inch VIS) FST CRT
-	4942-15x	-	IBM T115 15" TFT LCD
-	4943-17x	-	IBM T117 17" TFT LCD
-	4944-19x	-	IBM T119 19" TFT LCD
-	4945-20x	-	IBM T120 20.1" TFT LCD
Keyboard and Mouse			
0008660	40K5372	8660	IBM Keyboard with Integrated Pointing Device - 3m Cable - Black - USB - US English
40K9491	40K9200	8912	IBM 2 Button Optical Wheel Mouse - Black - USB
40K9492	40K9201	8913	IBM 3 Button Optical Mouse - Black - USB
0008915	40K9202	8915	SpacePilot Advanced 3d Pointing Device USB - Stealth Black
40K9490	40K9584	8750	IBM Preferred Pro Keyboard- Full Width - 2m Cable - Black - USB - US English

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Chapter 4. IntelliStation A Pro 6217

IntelliStation A Pro 6217 also provides an integrated Broadcom 5703ci Gb Ethernet controller (WOL, ASF2.0), five USB ports (three rear / two front), two 9-pin serial ports, two IEEE 1394A ports (one front/one rear) and one 25-pin parallel port. It supports a single 530w power supply, and ships with a keyboard and mouse but without a diskette drive.

Table 9. IntelliStation A Pro 6217 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Video Adapter (PCIe)	Form Factor[4]	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max[5, 6]	Optical Drive	HDD Bays (Std/Max)	Bays(Total/Avail)	PCI-X Slots (Total/Avail)	Slots (Total/Avail)
6217 -62Y	275-1MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro FX 1400	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 - 37Y[10]	252-1MB L2	2 / 2	8GB/ 16GB	nVIDIA Quadro NVS 280	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -36Y	252-1MB L2	2 / 2	4GB/ 16GB	nVIDIA Quadro FX 1400	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	Multi-Burner Plus	1 / 4	6 / 4	5 / 4	6 / 5
6217 -35Y	252-1MB L2	2 / 2	4GB/ 16GB	3DLabs Wildcat Realizm 800	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	Multi-Burner Plus	1 / 4	6 / 4	5 / 3[9]	6 / 4
6217 -33Y	252-1MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro FX 1400	Mini-Tower	1GB	U320	Fixed SCSI	73GB/ 1200GB[8]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -30Y	252-1MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro NVS 280	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 - 28Y[10]	250-1MB L2	2 / 2	4GB/ 16GB	nVIDIA Quadro FX 3400	Mini-Tower	1GB	U320	Fixed SCSI	73GB/ 1200GB[8]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	-	6 / 4	5 / 4	6 / 5

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Table 9. IntelliStation A Pro 6217 At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Video Adapter (PCIe)	Form Factor[4]	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max[5, 6]	Optical Drive	HDD Bays (Std/Max)	Bays(Total/Avail)	PCI-X Slots (Total/Avail)	Slots (Total/Avail)
6217 -22Y	250-1MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro FX 1400	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -21Y	250-1MB L2	2 / 2	2GB/ 16GB	nVIDIA Quadro NVS 280	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -68Y	275-1MB L2	2 / 2	4GB/ 16GB	3DLabs Wildcat Realizm 800	Mini-Tower	1GB	U320	Fixed SCSI	73GB/ 1200GB[8]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 3[9]	6 / 4
6217 - 38Y[10]	252-1MB L2	2 / 2	8GB/ 16GB	3DLabs Wildcat Realizm 800	Mini-Tower	1GB	U320	Fixed SCSI	73GB/ 1200GB[8]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 3[9]	6 / 4
6217 -41Y	254-1MB L2	1 / 2	4GB/ 16GB	nVIDIA Quadro FX 3400 PCIExpress	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -42Y	254-1MB L2	1 / 2	1GB/ 16GB	nVIDIA Quadro NVS 285	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -43Y	254-1MB L2	2 / 2	4GB/ 16GB	nVIDIA Quadro FX 3400 PCIExpress	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -44Y	254-1MB L2	2 / 2	4GB/ 16GB	nVIDIA Quadro NVS 285	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -45Y	254-1MB L2	2 / 2	4GB/ 16GB	nVIDIA Quadro FX 3400 PCIExpress	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -46Y	254-1MB L2	2 / 2	4GB/ 16GB	nVIDIA Quadro FX 4500 PCIExpress	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5

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Table 9. IntelliStation A Pro 6217 At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Video Adapter (PCIe)	Form Factor[4]	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[5, 6]	Optical Drive	HDD Bays (Std/Max)	Bays(Total/Avail)	PCI-X Slots (Total/Avail)	Slots (Total/Avail)
6217 -47Y	254- 1MB L2	2 / 2	8GB/ 16GB	nVIDIA Quadro FX 4500 PCIExpress	Mini-Tower	1GB	U320	Fixed SCSI	73GB/ 1200GB[8]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -61Y	280- 2MB L2	2 / 2	4GB/ 16GB	nVIDIA Quadro NVS 285	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	1 / 4	6 / 4	5 / 4	6 / 5
6217 -2GY	250- 1MB L2	1 / 2	1GB/ 16GB	nVIDIA for Open Graphics Models	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	4 / 4	6 / 6	5 / 5	6 / 6
6217 -6GY	275- 2MB L2	1 / 2	1GB/ 16GB	nVIDIA for Open Graphics Models	Mini-Tower	1GB	SATA	Fixed SATA	80GB/ 1000GB[7]	48X/32X/48X/ 16X Max CD-RW/DVD-ROM	4 / 4	6 / 6	5 / 5	6 / 6
6217 -4BY	254-2.8 1MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro NVS 285	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6
6217 -4CY	254-2.8 1MB L2	1 / 2	4GB/ 16GB	nVIDIA Quadro FX 3500	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6
6217 -4DY	254-2.8 1MB L2	1 / 2	4GB/ 16GB	nVIDIA Quadro FX 4500	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6
6217 -4FY	254-2.6 1MB L2	1 / 2	8GB/ 16GB	nVIDIA Quadro FX 4500	Mini-Tower	1GB	U320	Fixed SCSI	73GB	DVD Combo	4 / 4	-	5 / 5	6 / 6
6217 -4GY	254-2.8 1MB L2	1 / 2	2GB/ 16GB	-	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6
6217 -8GY	285-2.6 2MB L2	1 / 2	2GB/ 16GB	-	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6
6217 -82Y	285-2.8 2MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro FX 1400	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6

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Table 9. IntelliStation A Pro 6217 At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Video Adapter (PCIe)	Form Factor[4]	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max[5, 6]	Optical Drive	HDD Bays (Std/Max)	Bays(Total/Avail)	PCI-X Slots (Total/Avail)	Slots (Total/Avail)
6217 -83Y	285-2.8 2MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro NVS 285	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6
6217 -84Y	285-2.8 2MB L2	1 / 2	4GB/ 16GB	nVIDIA Quadro FX 4500	Mini-Tower	1GB	U320	Fixed SCSI	73GB	Multi-burner	4 / 4	-	5 / 5	6 / 6
6217 -85Y	285-2.8 2MB L2	1 / 2	4GB/ 16GB	nVIDIA Quadro FX 3500	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD Combo	2 / 2	-	5 / 5	6 / 6
6217 -52Y	3.0/ (256)1 MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro FX 1500	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD/CD-RW	6 / 6	6 / 6	5 / 5	6 / 6
6217 -87Y	2.6/ (256)1 MB L2	1 / 2	2GB/ 16GB	nVIDIA Quadro FX 4500	Mini-Tower	1GB	SATA	Fixed SATA	160GB	DVD/CD-RW	4 / 4	6 / 6	4 / 5	6 / 6

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 6217-41Y is 6217-41U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. The IntelliStation A Pro 6217 contains AMD Opteron processors.
3. To achieve maximum memory capacity, an additional CPU must be installed to provide support for four additional DIMMs
4. A rack mount kit is available.
5. Maximum capacity for fixed (nonhot-swap) SCSI models is based on four 300GB fixed (nonhot-swap) SCSI HDDs.
6. Maximum storage capacity for SATA models is based on four 250GB SATA HDDs which requires installation of the optional ServeRAID-7t RAID controller and replacement of the standard HDD. Standard configuration will support two SATA HDDs.
7. SATA model ships standard with a single 80GB, 7200 rpm SATA HDD.
8. SCSI model ships standard with a single 73GB, 10K rpm SCSI HDD.
9. PCI slot four is not available for models using the 3DLabs Wildcat Realizm 800 PCIExpress Video Adapter.
10. Models 28Y, 37Y, 38Y ships with Red Hat Enterprise Linux WS 3 License. Other models ship preloaded with Microsoft Windows XP Professional.

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IntelliStation A Pro 6217 processor options

SBB Number	Option Number	Feature Code	Processor Options[1]	SMP Support[2]
25R7861	25R8957	-	Opteron Processor Model 250	22Y, 28Y, 21Y
39R6789	40K2526	-	Opteron Processor Model 254	41Y, 42Y, 43Y, 44Y, 45Y, 46Y, 47Y, 4BY, 4CY, 4DY, 4FY
25R7845	40K2527	0252	Dual Core Opteron Processor Model 275	62Y, 68Y
39R6790	40K2528	-	Dual Core Opteron Processor Model 280	61Y
25R7881	25R8962	-	Dual Core Opteron Processor Model 285	82Y, 83Y, 84Y, 85Y
90P1996	40K2525	-	AMD Opteron Processor Model 252	-
39R6954	40K1219	-	Opteron Processor Model 256	52Y, 87Y

Notes:
1. Installing a second CPU provides four additional memory DIMM slots for a total of eight. Each CPU card must have at least one pair of memory installed, memory must be installed in pairs.
2. One additional processor may be installed, providing a maximum of two. Processor models must match within a system.

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IntelliStation A Pro 6217 memory options

SBB Number	Option Number	Feature Code	Description
			Memory DIMMs[1, 2]
22P9270	73P2269	0511	2GB DDR PC2700 RDIMM (512Mbit)
73P3240	38L5221	0525	1GB PC3200 CL2.5 ECC DDR DRAM RDIMM (512Mbit)
-	73P3234	-	2GB PC3200 ECC DDR RDIMM Kit
73P3239	-	0524	512MB PC3200 CL2.5 ECC DDR DRAM RDIMM (256Mbit)
-	73P3233	-	1GB PC3200 ECC DDR RDIMM Kit
73P3241	38L5222	0526	2GB PC3200 CL2.5 ECC DDR DRAM RDIMM (512Mbit)
39M5798	-	0594	512MB PC2-3200-333 ECC DDR2 DIMM
39M5801	-	0595	1GB PC2-3200-333 ECC DDR2 DIMM
39M5804	-	0596	2GB PC2-3200-333 ECC DDR DIMM

Notes:

1. The memory must be installed in pairs across channels.

Table 10. Standard Memory Configuration

Model	Std. DIMM Configuration
42Y	2x512MB PC3200 CL2.5 ECC DDR DRAM RDIMM
62Y, 35Y, 33Y, 30Y, 22Y, 21Y, 4BY, 82Y, 83Y	2 x 1GB PC3200 CL2.5 ECC DDR DRAM RDIMM (512Mbit)
36Y, 28Y, 68Y, 41Y, 43Y, 44Y, 45Y, 46Y, 61Y, 52Y,4CY, 4DY, 84Y, 85Y, 87Y	4 x 1GB PC3200 CL2.5 ECC DDR DRAM RDIMM (512Mbit)
37Y, 38Y, 47Y, 4FY	4 x 2GB PC3200 CL2.5 ECC DDR DRAM RDIMM (512Mbit)

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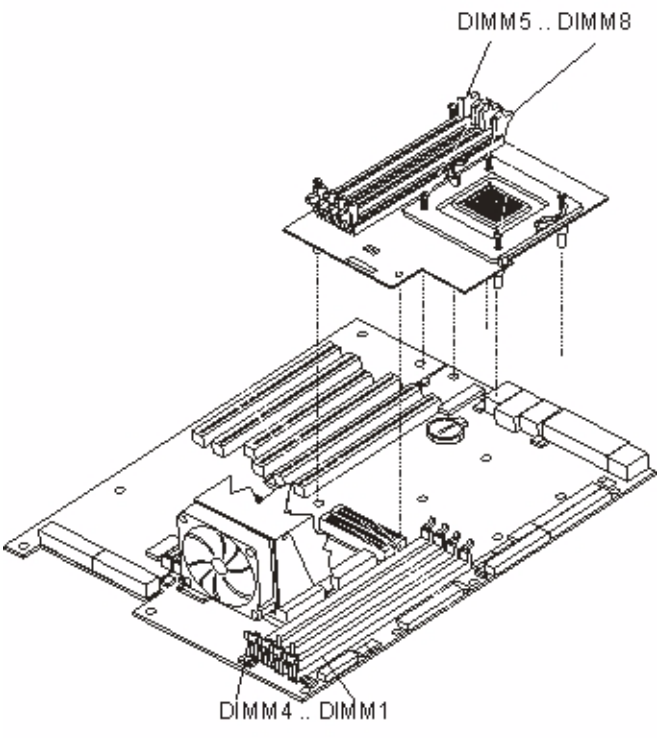

Figure 8. A Pro 6217 system board

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IntelliStation A Pro 6217 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Bays Supported	Height	Maximum Quantity[1]
Diskette Drives						
23K4959	05K9276	5300	1.44MB Flex File (FDD)	3	-	1
0005309	40K1692	5309	USB Portable Diskette Drive	-	-	-
SATA HDDs[2]						
74P5102	09N4253	5229	80GB 7200 RPM Serial ATA	-	-	-
90P0581	09N4254	5230	160GB 7200 RPM Serial ATA	-	-	-
39M4501	39M4500	5290	IBM 80GB 7200-rpm Simple-swap SATA HDD	-	-	-
39M4505	39M4504	5291	IBM 160GB 7200-rpm Simple-swap SATA HDD	-	-	-
39M4537	39M4508	5295	IBM 250GB 7200-rpm Simple-swap SATA HDD	-	-	-
39M4599	39M4514	5180	500GB 7200 RPM Hot-Swap SATA HDD	-	-	-
Fixed (Nonhot-swap) Ultra320 HDDs						
40K1061	40K1029	5157	73.4GB 10K rpm Ultra320 SCSI HDD (68-pin)	3 ... 6	SL	4
40K1062	40K1030	5182	146.4GB 10K rpm Ultra320 SCSI HDD (68-pin)	3 ... 6	SL	4
40K1063	40K1031	5183	300GB 10K rpm Ultra320 SCSI HDD (68-pin)	3 ... 6	SL	4
40K1064	40K1032	5184	36GB 15K rpm Ultra320 SCSI HDD (68-pin)	-	-	-
40K1065	40K1033	5174	73GB 15K rpm Ultra320 SCSI HDD (68-pin)	-	-	-
40K1066	40K1034	5185	146GB 15K rpm Ultra320 SCSI HDD (68-pin)	3 ... 6	SL	4
Optical Drives[4]						
26K8792	32R2905	4103	48X/32X/48X/16X Max CD-RW/DVD-ROM Combo Drive	1, 2	HH	2
26K8793	32R2906	4104	IBM Multi-Burner Plus	1, 2	HH	2
32P8852	10K3782	4105	48X-20X CD-ROM Black Internal IDE Drive	-	-	-
Associated Options						
02R3451	00N8078	5400	IBM 250MB IDE Internal Zip Drive	2	-	1

Notes:

1. Up to four SATA HDDs are supported with the installation of the optional ServeRAID-7t SATA RAID controller.
2. Mixing of different HDD technologies is supported. Follow installation order provided with the Bay Usage table.
3. Installation of this HDD option will require removing the simple-swap tray that ships with the HDD.
4. Standard optical drive is installed in Bay 1.

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Bay[1]	Form Factor	Height	Front Access	Usage
1	133 mm (5.25in)	HH	Yes	Std. Optical
2	133 mm (5.25in)	HH	Yes	Optical/Tape, Zip
3	89 mm (3.5in)	SL	Yes	HDD, DD
4 ... 6	89 mm (3.5in)	SL	No	Std. HDD[2]

Notes:
1. The installation order for adding additional HDDs depends upon the A Pro model. For SCSI models, install all additional SCSI HDDs, then install any SATA HDDs. For SATA models, install all additional SATA HDDs, then install any SCSI HDDs.
2. Standard HDD is installed in bay 4.

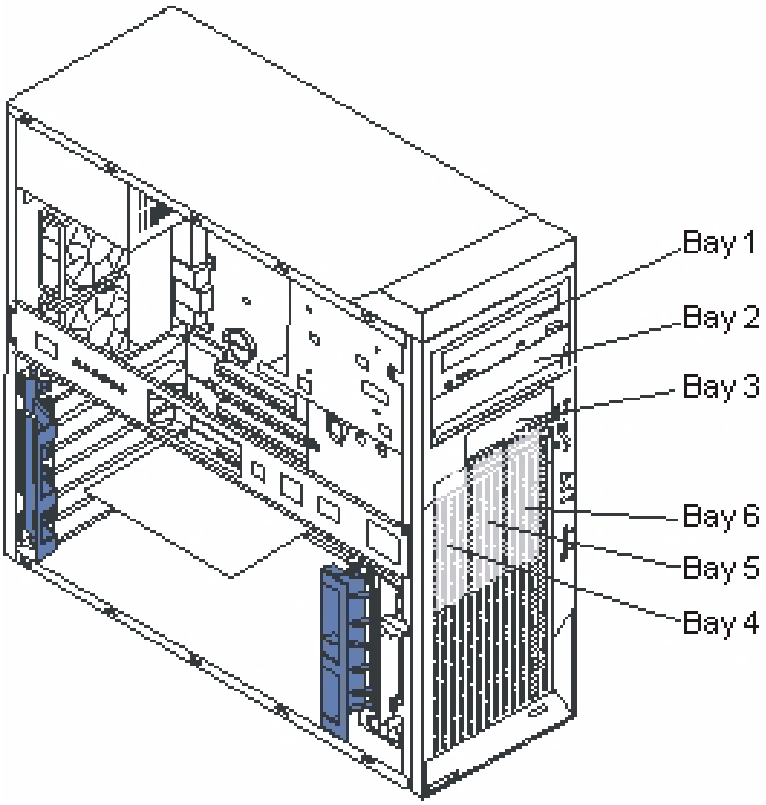

Figure 9. A Pro 6217 front view

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IntelliStation A Pro 6217 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported[1]
Storage Controllers						
13N2194	39R8793	1665	IBM ServeRAID-6i+ Integrated RAID Controller	-	-	3
39R8809	39R8805	1683	IBM ServeRAID 7t SATA Controller	-	-	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	-	-	-
Networking[2]						
39Y6108	39Y6105	1488	10/100 Ethernet Server Adapter	Half	64-bit/ 133MHz	1 ... 5
73P4005	73P4001	1509	NetXtreme 1000 SX Fiber Ethernet Adapter 2	Half	64-bit/ 133MHz	2

Notes:
1. IntelliStation A Pro 6217 Models with the 3DLabs Wildcat Realizm 800 PCIExpress Video Adapter installed will not have access to PCI slot 4.
2. All Models provide an integrated Intel gigabit Ethernet controller that supports WOL and ASF.

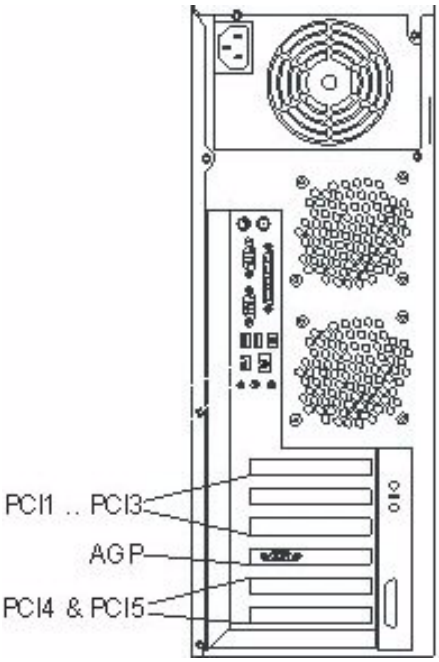

Figure 10. A Pro 6217 rear view

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SLOT/device	Type	Bus	Voltage (V)	Frequency MHz	Slot length
PCI Slot 1	PCI-X	O3	3.3	100	Full
PCI Slot 2	PCI-X	O2	3.3	133	Full
PCI Slot 3	PCI-X	13	3.3	100	Full
PCI Slot 4	PCI-X	0E	3.3	100	Full
PCI Slot 5	PCI-X	0E	3.3	100	Full

IntelliStation A Pro 6217 power and accessories

Option Number	Description
Power	
Tower Uninterruptible Power Supply (UPS)[1]	
2130R1X	UPS 750T LV
2130R2X	UPS 750T HV
2130R7X	UPS 750T JV
Power Distribution Units	
39Y8905	DPI NEMA Rack PDU
39Y8941	DPI 32A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord

Notes:
1. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.

IntelliStation A Pro 6217 tape options

SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
49P3228	48P7042	5354	20/40GB TR7 Internal IDE Tape Drive	2	Std. IDE	89mm (3.5in) SL or 133mm (5.25in) HH	-
71P9176	39M5656	5355	20/40GB DDS/ 5 Internal Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) SL or 133mm (5.25in) HH	4559HHX
External Tape Enclosures							
-	4559HHX	-	1U Half High Stand Alone SCSI Tape Drive Enclosure	-	-	-	-

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Chapter 5. xSeries 100

Table 11. xSeries 100 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet[4]	Storage Controller	Internal HDD Interface[5]	Internal HDD Storage (Std/Max)[6]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8486-E3Y	-	2.8/800 - 1MB	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	CD-ROM (48X-20X)	5/3	4/4
8486-E4Y	-	3.0/800 - 1MB	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-E5Y	-	3.2/800 - 1MB	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-E6Y	-	3.4/800 - 1MB	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-E1Y	-	2.53/533 - 1MB Celeron	1/1	256MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	CD-ROM (48X-20X)	5/3	4/4
8486-E2Y	Jun 27	2.53/533 - 1MB Celeron	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	CD-ROM (48X-20X)	5/3	4/4
8486-E7Y[7]	-	2.8/800 - 2MB Dual Core	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EAY	-	Celeron D 331 2.66/533 - 256KB EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	CD-ROM (48X-20X)	5/3	4/4
8486-EBY	-	Celeron D 331 2.66/533 - 256KB EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	CD-ROM (48X-20X)	5/3	4/4
8486-ECY	-	Pentium 4 521 2.8/800 - 1MB EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	CD-ROM (48X-20X)	5/3	4/4

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Table 11. xSeries 100 At-A-Glance (continued)

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet[4]	Storage Controller	Internal HDD Interface[5]	Internal HDD Storage (Std/Max)[6]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8486-EDY	-	Pentium 4 631 3.0/800 - 2MB EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EEY	-	Pentium 4 631 3.0/800 - 2MB EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EFY	-	Pentium 4 641 3.2/800 - 2MB EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EGY[7]	Jun 30	Pentium D 920 2.8/800 - 4MB EM64T Dual Core	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EHY[7]	Jun 30	Pentium D 920 2.8/800 - 4MB EM64T Dual Core	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EJY[7]	-	Pentium D 930 3.0/800 - 4MB EM64T Dual Core	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EKY[7]	-	Pentium D 930 3.0/800 - 4MB EM64T Dual Core	1/1	512MB/8Gb	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-ELY[7]	-	3.0/800 - 2MB Intel Pentium 4 Processor 631, with EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-EMY[7]	-	3.0/800 - 2MB Intel Pentium 4 Processor 631, with EM64T	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	CD-ROM	5/3	4/4
8486-ENY[7]	-	3.4/800 - 2MB Intel Pentium 4 HT 651	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4
8486-E8Y[7]	-	3.0/800 - 4MB Intel Pentium D Processor 930, EM64T Dual Core	1/1	512MB/8GB	Tower	1/1	-	N	1Gb	SATA	Fixed	80GB/500GB	Combo	5/3	4/4

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Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8486-E3Y is 8486-E3U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. Not available from IBM after this date. Business Partner Inventory may be available.
3. System memory can be expanded to 8GB by installing 2GB DIMM option in each of the four memory DIMM slots.
4. Wake on LAN is supported.
5. System ships standard with 80GB SATA HDDs.
6. Maximum capacity is based on installation of 250GB SATA HDDs.
7. These models ship with a dual core processor.

xSeries 100 memory options

SBB Number	Option Number	Feature Code	Memory Description
			Memory Cards
			Memory DIMMs[1, 2]
30R5154	30R5148	0530	512MB DDR2 533 DIMM Memory
30R5155	-	0531	1GB DDR2 533 DIMM Memory
-	30R5149	-	2GB (2x1GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM
30R5156	-	0532	2GB DDR2 533 DIMM Memory
-	30R5150	-	4GB (2x2GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM
39M5771	-	0536	256MB DDR2 533 DIMM Memory

Notes:

1. Largest value pair should be installed as first pair, next largest value pair should be installed as second pair, etcetera.
2. If installing DIMMs in pairs, use slots 1 and 3 first, then slots 2 and 4.

Table 12. Standard Memory Configuration

Model	Std. DIMM Configuration
E3Y, E6Y, EAY, EBY, ECY, EDY, EEY, EFY, EJY, EKY	1x512MB 533MHz PC2-4200 CL4 ECC DDR2
E1Y	1x256MB 533MHz PC2-4200 CL4 ECC DDR2

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xSeries 100 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
Diskette Drives						
0005309	40K1692	5309	IBM USB Portable Diskette Drive	-	-	-
Simple-Swap Hard Drives						
25R6923	39M4500	5293	80GB 7200 rpm SATA HDD	SL	4, 5	2
39M4535	39M4504	5294	160GB 7200 rpm SATA HDD	SL	4, 5	2
39M4537	39M4508	5295	250GB 7200 rpm SATA HDD	SL	4, 5	2
39M4515	39M4514	5288	500GB 7200 RPM 3.0 GB/sec SATA II HDD Simple-Swap	-	-	-
Optical Drives						
39M6344	32R2905	4139	48X/32X/48X/16X Max CD-RW/DVD-ROM Combo Drive	HH	1, 2	2
39M6345	32R2906	4140	Multiburner Plus	HH	1, 2	2
			External Storage Units	**Form Factor**		
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-		
-	17401xx	-	TotalStorage DS4000 EXP700 Storage Expansion Unit (all models)	-		
-	17407xx	-	TotalStorage DS4000 EXP710 Storage Expansion Unit (all models)	-		
-	35601xx	-	TotalStorage FAStT EXP500 Expansion Unit (all models)	-		
-	45591UX	-	IBM 1U xSeries Tape Enclosure Rack or Tower	-		
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-		
-	4559HHX	-	IBM 1U Half High Stand Alone SCSI Tape Drive Enclosure	-		

Bay	Form Factor	Height	Front Access	Usage
1	133mm (5.25in)	HH	Yes	Std. Optical
2	133mm (5.25in)	HH	Yes	Optical/Tape
3	89mm (3.5in)	SL	Yes	Std. FDD/Floppy
4	89mm (3.5in)	SL	Yes	Std. HDD
5	89mm (3.5in)	SL	Yes	HDD

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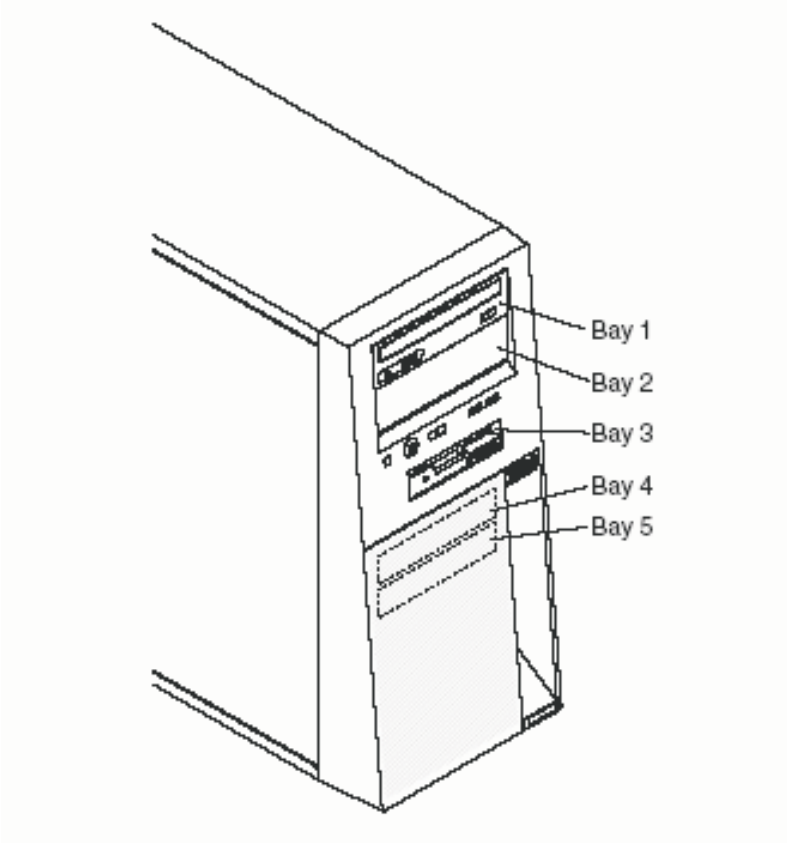

Figure 11. xSeries 100 front view

xSeries 100 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Storage Controllers								
39R8809	39R8805	1683	ServeRAID 7t SATA Controller	Half	64-bit/ 66MHz	3, 4	-	1
39R8752	39R8743	1680	IBM Ultra 320 SCSI Controller 2	Half	64-bit/ 66MHz	3, 4	-	1
External Disk Systems and Options								
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-	-
-	17011RS	-	IBM TotalStorage DS300 - Single Controller	-	-	-	-	-
Networking								
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	Half	64-bit/ 133MHz	3, 4	-	2
39Y6091	39Y6088	1487	NetXtreme 1000 S + Ethernet Adapter	Half	64-bit/ 133MHz	3, 4	-	2

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
73P3605	73P3601	1507	IBM iSCSI Server Adapter	Half	64-bit/ 133MHz	3, 4	-	2
39Y6108	39Y6105	1488	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/ 133MHz	3, 4	-	2
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	Half	64-bit/ 133MHz	3, 4	-	2
39Y6101	39Y6098	1486	NetXtreme 1000 Express G Ethernet Adapter	Half	PCI E 1X	1, 2	-	2
73P3505	73P3501	1508	NetXtreme 1000 Express Ethernet Adapter	Half	PCI E 1X	1, 2	-	2
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	Half	64-bit/ 133MHz	3, 4	-	2
39Y6096	39Y6093	1511	NetXtreme 1000 T + Dual Port Ethernet Adapter	Half	64-bit/ 133MHz	3, 4	-	2

Notes:
1. Supports tape backup solutions.

xSeries 100 power and accessories

Option Number	Description
Power	
-	-
Uninterruptible Power Supply[1]	
2130R4X	UPS 1000T HV
2130R8X	UPS 1000T JV
2130R3X	UPS 1000T LV
2130R6X	UPS 1500T HV
2130R9X	UPS 1500T HV
2130R5X	UPS 1500T LV
2130R2X	UPS 750T HV
2130R7X	UPS 750T JV
2130R1X	UPS 750T LV

Notes:
1. Uninterruptible Power Supplies are not supported on Red Hat Enterprise Linux 4.

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Option Number	Description
Rack Console Connectivity	
17351LX	1x8 Local Console Manager
17351GX	2x8 Local Console Manager
17352LX	2x16 Local Console Manager
17352GX	2x16 Global Console Manager
17354GX	4x16 Global Console Manager
Monitors	
90P0721	IBM L170p 17" TFT Monitor (Hybrid)
49387XX	C117 17in (15.9 inch VIS) FST CRT
494215X	T115 15in TFT LCD
494317X	T117 17in TFT LCD
Keyboard and Mouse	
40K5372	USB Keyboard with UltraNav
40K9584	Preferred Pro USB Keyboard, business black
40K9200	Optical Wheel Mouse - USB

xSeries 100 tape options

SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
Tape Drives							
71P9176	39M5656	5355	36/72GB DDS Generation 5 Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	45591UX 4559HHX 45594UX
49P3228	48P7042	5354	20/40GB TR7 Internal IDE Tape Drive	2	-	-	-
-	39M5641	-	VXA 2 Tape Drive and 5-pack Media Express Option[1]	-	-	-	-
-	39M5643	-	DDS5 Tape Drive and 5-pack Media Express Option	-	-	-	-
Tape Autoloaders							
-	36232LX	-	LTO2 1x8 Tape Autoloader	-	-	-	-
-	36232SX	-	SDLT 320 1x8 Tape Autoloader	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
External Tape Libraries							
-	3582-L23 /F32	-	Ultrium2 Tape Library	-	-	-	-
External Tape Enclosures							
-	45591UX	-	1U xSeries Tape Enclosure	-	-	-	-
-	45594UX	-	4U Rackmount SCSI Tape Drive Enclosure	-	-	-	-
-	4559HHX	-	1U Half High SCSI Tape Drive Enclosure	-	-	-	-

Notes:

1. This tape drive contains the following options: option part number of single drive - 39M5656 and option part number 5 Pack DDS Gen 5 (36/72 GB) Tape Media - 71P9158.

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Chapter 6. xSeries 206m

Table 13. xSeries 206m At-A-Glance

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8485-10Y	-	3.0 /800 - 1MB L2	1 / 1	512MB/ 8GB	Tower	1 / 1	-	N	1GB	SATA	Fixed	80GB/ 2TB	48X-20X CD-ROM	4 / 2	4 / 4
8485-12Y	-	3.0/800 -1 MB L2	1 / 1	256MB/ 8GB	Tower	1 / 1	-	N	1GB	SATA	Simple-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 2	4 / 4
8485-20Y	-	3.2/800 - 2MB L2	1 / 1	512MB/ 8GB	Tower	1 / 1	-	N	1GB	SATA	Fixed	80GB/ 2TB	48X-20X CD-ROM	4 / 3	4 / 4
8485-70Y	-	2.8/800 - 2x1MB L2	1 / 1	1GB/ 8GB	Tower	2 / 2	P H	N	1GB	SATA /SAS	Hot-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	6 / 6
8485-80Y	-	3.0/800 - 2x1MB L2	1 / 1	1GB/ 8GB	Tower	2 / 2	P H	N	1GB	SATA /SAS	Hot-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	6 / 6
8485-1AY	-	3.0/800 - 2MB L2	1 / 1	512MB/ 8GB	Tower	1 / 1	-	N	1GB	SATA	Simple-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	4 / 4
8485-2AY	-	3.2/800 - 2MB L2	1 / 1	512MB/ 8GB	Tower	1 / 1	-	N	1GB	SATA	Simple-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	4 / 4
8485-3AY	-	3.4/800 - 2MB L2	1 / 1	1GB/ 8GB	Tower	1 / 1	H	N	1GB	SATA /SAS	Hot-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	6 / 6
8485-3BY	-	3.4/800 - 2MB L2	1 / 1	1GB/ 8GB	Tower	2 / 2	P H	N	1GB	SATA /SAS	Hot-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	6 / 6
8485-7AY	-	2.8/800 - 2x1MB L2	1 / 1	512MB/ 8GB	Tower	1 / 1	-	N	1GB	SATA	Simple-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	4 / 4
8485-8AY	-	3.0/800 - 2x1MB L2	1 / 1	512MB/ 8GB	Tower	1 / 1	P H	N	1GB	SATA /SAS	Hot-Swap	0GB/ 2TB	48X-20X CD-ROM	4 / 3	6 / 6

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Table 13. xSeries 206m At-A-Glance (continued)

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8485-A2Y	-	2.8/800-1MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8485-B2Y	-	3.0/800-2MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8485-B4Y	-	3.0/800-2MB L2	1/1	512MB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	160GB/2TB	48/32/48/16X Combo Drive	4/2	4/4
8485-B6Y	-	3.0/800-2MB L2	1/1	1GB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	320GB/2TB	48/32/48/16X Combo Drive	4/1	4/4
8485-F2Y	-	3.6/800-2MB L2	1/1	512MB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8485-F4Y	-	3.6/800-2MB L2	1/1	1GB/8GB	Tower	1/2	H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8485-G2Y	Jun 27	2.8/800-4MB DC L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8485-H2Y	-	3.0/800-4MB DC L2	1/1	512MB/8GB	Tower	1/1	P H	N	1GB	SAS/SATA	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8485-H4Y	-	3.0/800-4MB DC L2	1/1	1GB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	500GB/2TB	48/32/48/16X Combo Drive	4/1	4/4
8485-H6Y	-	3.0/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8485-H8Y	-	3.0/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48/32/48/16X CD-ROM	4/3	6/6

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Table 13. xSeries 206m At-A-Glance (continued)

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8485-J2Y	-	3.2/800-4MB DC L2	1/1	1GB/8GB	Tower	1/1	PH	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8485-J4Y	-	3.2/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	PH	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8485-K2Y	-	3.4/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	PH	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8490-10Y	-	3.0 /800 - 1MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Fixed	80GB/2TB	48X-20X CD-ROM	4/2	4/4
8490-12Y	-	3.0/800 - 1MB L2	1/1	256MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM	4/3	4/4
8490-20Y	-	3.2/800 - 2MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Fixed	80GB/2TB	48X-20X CD-ROM	4/2	4/4
8490-70Y	-	2.8/800 - 2x1MB L2	1/1	1GB/8GB	Tower	2/2	PH	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM	4/3	6/6
8490-80Y	-	3.0/800 - 2x1MB L2	1/1	1GB/8GB	Tower	2/2	PH	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM	4/3	6/6
8490-1AY	-	3.0/800 - 2MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM	4/3	4/4
8490-2AY	-	3.2/800 - 2MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM	4/3	4/4
8490-3AY	-	3.4/800 - 2MB L2	1/1	1GB/8GB	Tower	1/1	H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM	4/3	6/6
8490-3BY	-	3.4/800 - 2MB L2	1/1	1GB/8GB	Tower	2/2	PH	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM	4/3	6/6

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Table 13. xSeries 206m At-A-Glance (continued)

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8490-7AY	-	2.8/800 - 2x1MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8490-8AY	-	3.0/800 - 2x1MB L2	1/1	512MB/8GB	Tower	1/1	P H	N	1GB	SATA /SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8490-A2Y	-	2.8/800-1MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8490-B2Y	-	3.0/800-2MB L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8490-B4Y	-	3.0/800-2MB L2	1/1	512MB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	160GB/2TB	48/32/48/16X Combo-Drive	4/2	4/4
8490-B6Y	-	3.0/800-2MB L2	1/1	1GB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	320GB/2TB	48/32/48/16X Combo-Drive	4/1	4/4
8490-F2Y	-	3.6/800-2MB L2	1/1	512MB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8490-F4Y	-	3.6/800-2MB L2	1/1	1GB/8GB	Tower	1/2	H	N	1GB	SATA /SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8490-G2Y	Jun 27	2.8/800-4MB DC L2	1/1	512MB/8GB	Tower	1/1	-	N	1GB	SATA	Simple-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	4/4
8490-H2Y	-	3.0/800-4MB DC L2	1/1	512MB/8GB	Tower	1/1	P H	N	1GB	SATA /SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6

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Table 13. xSeries 206m At-A-Glance (continued)

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8490-H4Y	-	3.0/800-4MB DC L2	1/1	1GB/8GB	Tower	1/2	-	N	1GB	SATA	Simple-Swap	500GB/2TB	48/32/48/16X Combo Drive	4/1	4/4
8490-H6Y	-	3.0/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8490-H8Y	-	3.0/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48/32/4816X Combo Drive	4/3	6/6
8490-J2Y	-	3.2/800-4MB DC L2	1/1	1GB/8GB	Tower	1/1	P H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8490-J4Y	-	3.2/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8490-K2Y	-	3.4/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	0GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/3	6/6
8490-EGY	Jun 27	3.0/800-2MB L2	1/1	512GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	640GB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/0	6/6
8490-GBY	-	2.8/800-4MB DC L2	1/1	1GB/8GB	Tower	2/2	P H	N	1GB	SATA/SAS	Hot-Swap	2TB/2TB	48X-20X CD-ROM Black Internal IDE Drive	4/0	6/6

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8485-10Y is 8485-10U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. The 8485 machine type carries a one year limited parts and labor warranty. The 8490 machine type carries a three year limited parts and labor warranty.

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3. Not available from IBM after this date. Business Partner Inventory may be available.
4. Maximum 8GB of memory is supported via four DIMM slots with currently available options.
5. Power Supply Quantity (Std/Max) column - 1/1 means 25R8778 is the non-redundant power base, it comes with one 400W power supply; 2/2 means 25R8803 is the redundant power base, it comes with two 430W power supplies.
6. SATA and SAS cannot be intermixed on the same system. Universal keyed SAS backplane supports both SAS and SATA HDDs.
7. Capacities are based on installation of four 500GB SATA HDDs.

xSeries 206m memory options

SBB Number	Option Number	Feature Code	Description
			Memory DIMMs
30R5154	-	0530	512MB DDR2 533 DIMM Memory
-	30R5148	-	512MB (1x512MB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM
30R5155	-	0531	1GB DDR2 533 DIMM Memory
-	30R5149	-	2GB (2x1GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM
30R5156	-	0532	2GB DDR2 533 DIMM Memory
-	30R5150	-	4GB (2x2GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM

SBB Number	Option Number	Feature Code	Description
			Memory DIMMs
30R5154		0530	512MB DDR2 533 DIMM Memory
	30R5148		512MB (1x512MB) PC2-4200 CL3 ECC DDR2 RoHS SDRAM DIMM
30R5155		0531	1GB DDR2 533 DIMM Memory
	30R5149		2GB (2x1GB) PC2-4200 CL3 ECC DDR2 RoHS SDRAM DIMM
30R5156		0532	2GB DDR2 533 DIMM Memory
	30R5150		4GB (2x2GB) PC2-4200 CL3 ECC DDR2 RoHS SDRAM DIMM

Table 14. Standard Memory Configuration

Model	Std. DIMM Configuration[1]
10Y, 20Y, 1AY, 2AY, 7AY, 8AY, E1Y, A2Y, B2Y, H2Y	1x512MB DDR2 533 DIMM Memory
3AY, 3BY, 70Y, 80Y, J2Y, J4Y	2x512MB DDR2 533 DIMM Memory
E2Y, E4Y	2x1GB DDR2 533 DIMM Memory

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Notes:

1. A maximum of 8 GB of memory is supported using the four DIMM slots with currently available options.

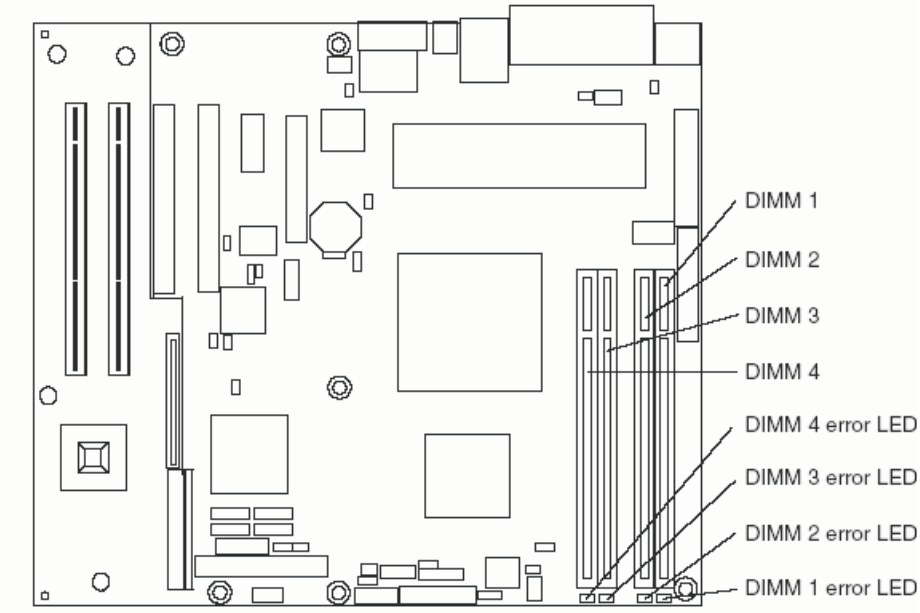

Figure 12. x206m DIMMs

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xSeries 206m hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
Diskette Drives						
23K4959	05K9276	5300	IBM USB Portable Diskette Drive	-	-	-
SAS Hard Drives [1]						
40K1071	40K1039	5163	73GB 10K 3.5" SAS Hot-Swap HDD	SL	4…7	4
40K1072	40K1040	5164	146GB 10K 3.5" SAS Hot-Swap HDD	SL	4…7	4
40K1073	40K1041	5156	300GB 10K 3.5" SAS Hot-Swap HDD	SL	4…7	4
40K1074	40K1042	5160	36GB 15K 3.5" SAS Hot-Swap HDD	SL	4…7	4
40K1075	40K1043	5161	73GB 15K 3.5" SAS Hot-Swap HDD	SL	4…7	4
SATA Hard Drives[1]						
39M4501	39M4500	5290	80GB 7200 rpm Simple-Swap SATA HDD	SL	4…7	4
39M4505	39M4504	5291	160GB 7200 rpm Simple-Swap SATA HDD	SL	4…7	4
39M4509	39M4508	5292	250GB 7200 rpm Simple-Swap SATA HDD	SL	4…7	4
39M4515	39M4514	5288	500GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	4…7	4
39M4519	39M4518	5299	80GB Hot-Swap SATA HDD	SL	4 ... 7	4
39M4523	39M4522	5150	160GB Hot-Swap SATA HDD	SL	4…7	4
39M4527	39M4526	5151	250GB Hot-Swap SATA HDD	SL	4…7	4
39M4531	39M4530	5196	500GB 7200 RPM 3.5" Hot-Swap SATA HDD	SL	4…7	4
Optical Drives[2]						
39M6344	32R2905	4139	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	HH	1, 2	2
39M6345	32R2906	4140	IBM DVD Multi-Burner Plus Drive	HH	1, 2	2
External Storage Units				**Form Factor**		
39R6615	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
Simple-Swap SATA Hard Drives						
39M4501	39M4500	5290	80GB 7200 rpm Simple-Swap SATA HDD	SL	4…7	4

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
39M4505	39M4504	5291	160GB 7200 rpm Simple-Swap SATA HDD	SL	4…7	4
39M4509	39M4508	5292	250GB 7200 rpm Simple-Swap SATA HDD	SL	4…7	4
Hot-Swap SAS Hard Drives						
26K5715	26K5709	5281	73GB 10K 3.5" SAS Hot-Swap HDD	SL	4…7	4
26K5716	26K5710	5282	146GB 10K 3.5" SAS Hot-Swap HDD	SL	4…7	4
26K5717	26K5711	5283	300GB 10K 3.5" SAS Hot-Swap HDD	SL	4…7	4
26K5703	26K5697	5285	36GB 15K 3.5" SAS Hot-Swap HDD	SL	4…7	4
26K5704	26K5698	5286	73GB 15K 3.5" SAS Hot-Swap HDD	SL	4…7	4
Hot-Swap SATA Hard Drives						
39M4523	39M4522	5150	160GB Hot-Swap SATA HDD	SL	4…7	4
39M4527	39M4526	5151	250GB Hot-Swap SATA HDD	SL	4…7	4
Optical Drives						
39M6344	32R2905	4139	48/32/48/16X Combo Drive	HH	1, 2	2
39M6345	32R2906	4140	Multiburner Plus	HH	1, 2	2
			External Storage Units	**Form Factor**		
-	17331RU	-	IBM EXP400 Storage Expansion Unit	-		
-	17101xx	-	TotalStorage DS4000 EXP100 Stroage Expansion Unit (all models)	-		
-	17407xx	-	TotalStorage DS4000 EXP710 Storage Expansion Unit (all models)	-		

Notes:

1. Mixing of different HDD technologies (SATA and SAS) is not supported.
2. The xSeries 206m IDE controller supports a maximum of two “parallel” IDE devices (IDE optical drives)

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Bay	Form Factor	Height	Front Access	Usage
1	133mm (5.25in)	HH	Yes	Std. Optical
2	133mm (5.25in)	HH	Yes	Optical/Tape/Special bid HD
3	89mm (3.5in)	SL	Yes	Floppy
4	89mm (3.5in)	SL	Yes	Std. HDD
5	89mm (3.5in)	SL	Yes	HDD
6	89mm (3.5in)	SL	Yes	HDD
7	89mm (3.5in)	SL	Yes	HDD

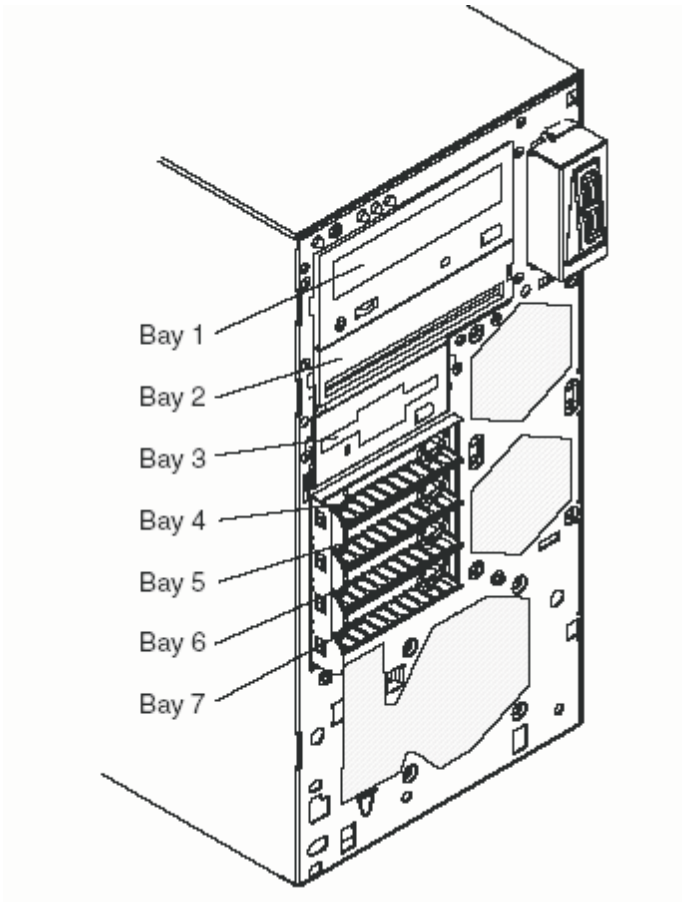

Figure 13. x206m front view

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xSeries 206m I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Storage Controllers								
02R0995	39R8815	1654	ServeRAID-6M Ultra320 SCSI Controller (128MB Cache)	Full	64-bit/ 133MHz	5, 6	-	2
13N2232	39R8729	1664	ServeRAID 8i SAS RAID Controller	Half	64-bit/ 133MHz	6	-	1
71P8651	39R8805	1651	ServeRAID 7t SATA Controller	Half	64-bit/ 66MHz	3, 4, 5, 6	-	1
39R8752	39R8743	1680	Ultra320 SCSI Controller 2	-	-	-	-	-
External Disk Systems and Options								
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-	-
Networking								
73P3605	73P3601	1507	IBM iSCSI Server Adapter	Half	-	-	-	-
39M4948	39M4948	1617	Remote Supervisor Adapter II	-	-	-	-	-
73P4105	39Y6079	1510	NetXtreme 1000 T + Ethernet Adapter 2	Half	64-bit/ 133MHz	5, 6	-	2
73P4205	39Y6093	1511	NetXtreme 1000 T + Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	5, 6	-	2
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	Half	-	-	-	-
31P9605	39Y6105	1512	PRO/1000 MT Server Ethernet Adapter by Intel	Half	-	-	-	-
39Y6089	39Y6088	2938	NetXtreme 1000 SX + Ethernet Adapter	-	-	-	-	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	-	-	-	-	-
System Management								
13N0761	59P2984	1609	Remote Supervisor Adapter II	Half	-	-	-	-
Other I/O								
25R7432	39R8115	4213	PCI-X Expansion Card[2]	-	-	-	-	-
32P8862	33L4618	1524	V.90 PCI Data/Fax Modem	-	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Storage Controllers								
02R0995	32P0033	1654	IBM ServeRAID-6M Ultra320 SCSI Controller (128MB Cache)	Full	64-bit/133 MHz	5, 6	-	2
02R0996	02R0988	1653	IBM ServeRAID-6M Ultra320 SCSI Controller (256MB Cache)	Full	64-bit/133 MHz	5, 6	-	2
13N2252	13N2249	1656	IBM Ultra320 SCSI Controller 2[1]	Half	64-bit/66MHz	5, 6	-	2
71P8651	71P8648	1651	IBM ServeRAID 7t SATA Controller	Half	64-bit/66MHz	3, 4, 5, 6	-	1
External Disk Systems and Options								
-	24P0960	-	DS4000 Host Bus Adapter	Half	64-bit/133 MHz	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-	-
-	17241xx	-	TotalStorage DS4100 Midrange Disk System (all models)	-	-	-	-	-
-	24P82xx	-	TotalStorage DS4300 Model 60U with Turbo	-	-	-	-	-
-	17421xx	-	TotalStorage DS4400 Midrange Disk System (all models)	-	-	-	-	-
-	17429xx	-	TotalStorage DS4500 Midrange Disk system (all models)	-	-	-	-	-
-	17226xx	-	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-	-	-
-	18158xx	-	TotalStorge DS4800 Midrange Disk System (all models)	-	-	-	-	-
Networking								
-	06P3601	-	10/100 Ethernet Server Adapter	-	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
-	31P9601	-	PRO/1000 MT Server Ethernet Adapter	-	-	-	-	-
73P3505	73P3501	1508	NetXtreme 1000 Express Ethernet Adapter	Half	PCI E 1X	1, 2	-	2
73P4005	73P4001	1509	NetXtreme 1000 SX + Fiber Ethernet Adapter 2	Half	64-bit/133 MHz	5, 6	-	2
73P4105	73P4101	1510	NetXtreme 1000 T + Ethernet Adapter 2	Half	64-bit/133 MHz	5, 6	-	2
73P4205	73P4201	1511	NetXtreme 1000 T + Dual Port Ethernet Adapter 2	Half	64-bit/133 MHz	5, 6	-	2
73P3605	73P3601	1507	IBM iSCSI Server Adapter	Half	64-bit	5, 6	-	2
73P5105	73P5101	-	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/133 MHz	-	-	-
Systems Management								
13N0761	59P2984	1609	Remote Supervisor Adapter II (US)	Half	32-bit/33MHz	3,4	-	1
Other I/O								
25R7432	39R8115	4213	PCI-X Expansion Card[2]	-	-	-	-	-

Notes:
1. Support is for SCSI tape drives.bye
2. PCI slots 5 and 6 will only be available if SBB 25R7432 is selected.

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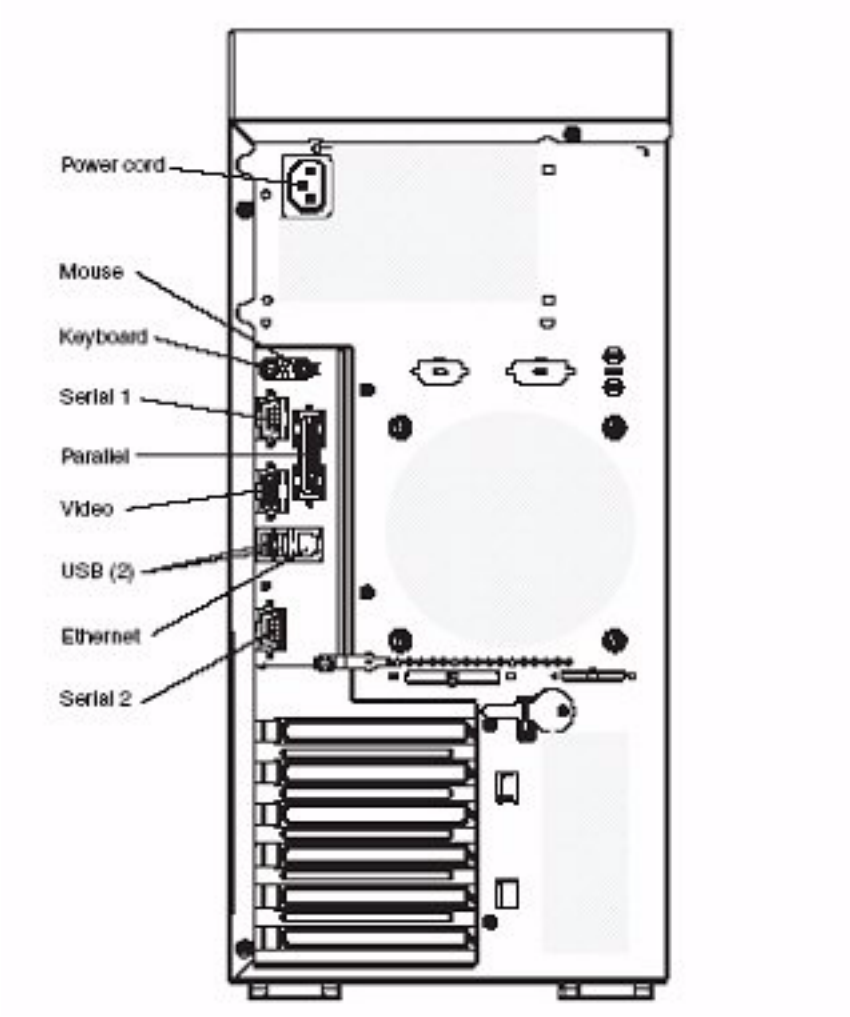

Figure 14. x206m rear view

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SLOT/device	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI? (Hotswap)	Slot length
PCI Slot 1	PCI-Express x 8	-	-	-	-	-	-
PCI Slot 2	PCI-Express x 1	-	-	-	-	-	-
PCI Slot 3	PCI 32/33	-	-	33MHz	32-bit	-	-
PCI Slot 4	PCI 32/33	-	-	33MHz	32-bit	-	-
PCI Slot 5	PCI-X 64 bit	-	-	100MHz	64-bit	-	-
PCI Slot 6	PCI-X 64 bit	-	-	100MHz	64-bit	-	-

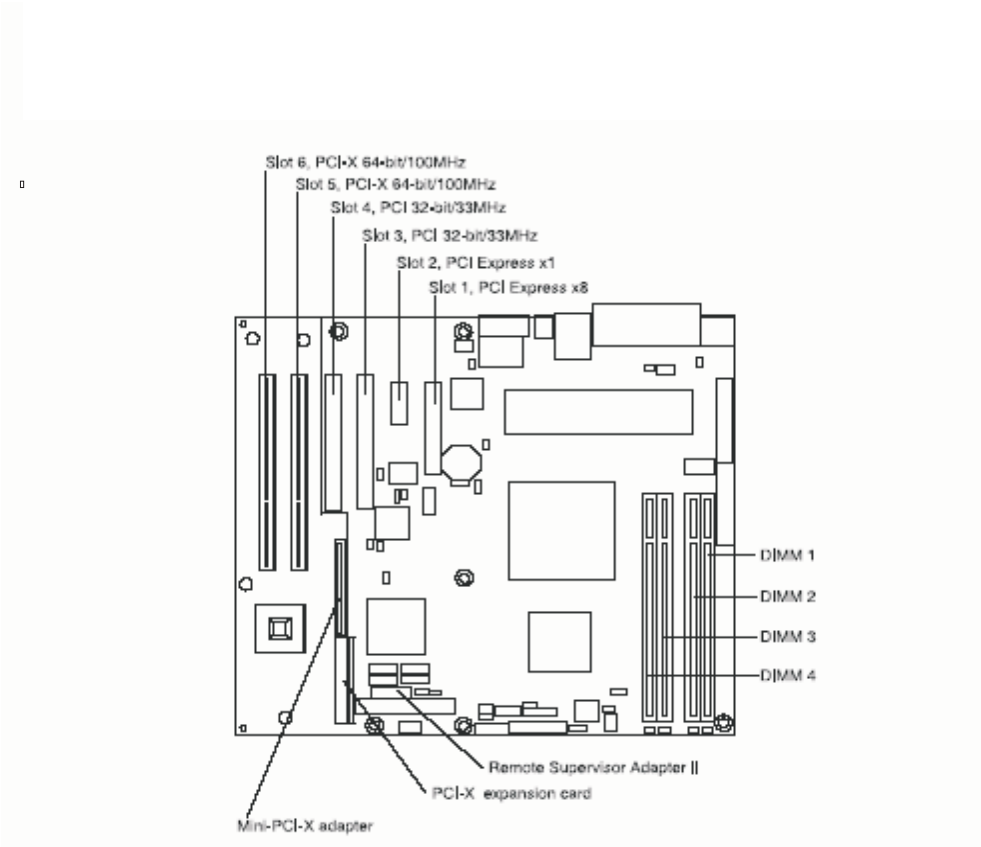

Figure 15. x206m system board

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SBB Number	Option Number	Feature Code	Description
			Power Distribution Units
-	26K4241	-	DPI 32A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4242	-	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	26K4243	-	DPI 63A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4245	-	DPI 32A Three Phase C13 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
-	26K4246	-	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
-	26K4256	-	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	26K4257	-	DPI 63A Single Phase C19 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4259	-	DPI 32Z Three Phase C19 Enterprise PDU w/IEC309 3P+N+G (250v) line cord
-	39Y8951	-	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
-	32P1751	-	30amp/125V Front-end PDU with NEMA L5-30P connector
-	32P1754	-	63amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
-	32P1761	-	DPI NEMA Rack PDU
-	32P1766	-	30amp/250V Front-end PDU with NEMA L6-30P connector
-	32P1767	-	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
-	73P5844	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
-	73P5847	-	60A/208V 3P w/IEC309 3P+Gnd Conn
-	73P5855	-	60A/208V 1P w/IEC309 2P+Gnd Conn
-	73P5856	-	63A/320V 1P w/IEC309 P+N+Gnd Conn
			Uninterruptible Power Supply (UPS)
-	2130R1X	-	IBM UPS 750T LV
-	2130R2X	-	IBM UPS 750T HV
-	2130R3X	-	IBM UPS 1000T LV
-	2130R4X	-	IBM UPS 1000T HV
-	2130R5X	-	IBM UPS 1500T LV
-	21303RX	-	IBM UPS 7500XHV
-	2130R6X	-	IBM UPS 1500T HV
-	2130R7X	-	IBM UPS 750T JV
-	21304RX	-	IBM UPS 10000XHV
-	2130R8X	-	IBM UPS 1000T JV
-	2130R9X	-	IBM UPS 1500T JV
-	2130R31	-	IBM UPS3000XHV 200-240V (US HV cord)
-	39Y8857	-	IBM UPS 3U Online Battery Pack
-	32P1020	-	APC 2U Smart-UPS 1400RMB
-	32P1022	-	APC 2U Smart-UPS 1400RMiB
-	32P1024	-	APC 2U Smart-UPS 1400RMB (JAPAN)
-	32P1692	-	IBM UPS Extend Run Battery Pack

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SBB Number	Option Number	Feature Code	Description
Rack/Tower Conversion Kits			
-	39Y9707	-	5Ux20D Tower to Rack Conversion Kit
Rack Console Connectivity			
-	17351LX	-	1x4 port Console Switch
-	17352LX	-	2x8 port Console Switch
-	1735L04	-	NetBAY Local Console Manager
-	1735R16	-	NetBAY Remote Console Manager
-	17351GX	-	IBM 2x8 Local Console Manager
-	17352GX	-	IBM Global 2x16 Console Manager
-	17354GX	-	IBM Global 4x16 Console Manager
Racks			
-	14104RX	-	IBM Linux Cluster Rack
-	93061RX	-	NetBAY11 Standard Rack Cabinet
-	93072RX	-	IBM 25U Standard Rack
-	93074XX	-	IBM 42U Standard Rack Extension
-	93074RX	-	IBM 42U Standard Rack
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
Monitors			
-	17231UX	-	1U 17in Flat Panel Monitor Console Kit with US Keyboard
-	17231RX	-	1U 17in Flat Panel Monitor Console Kit without Keyboard
-	17232UX	-	2U Flat Panel Monitor Console Kit with US Keyboard
-	17233RX	-	2U Flat Panel Monitor Console Kit without Keyboard
-	90P0721	-	L170p 17in TFT Monitor
-	49387XX	-	C117 17in (15.9 inch VIS) FST CRT
25R4186	494215X	7604	T115 15in TFT LCD
25R4188	494317X	7606	T117 17in TFT LCD
Keyboard and Mouse			
02R3206	25R6968	8800	Preferred Pro Full Size Keyboard - PS/2
40K9490	40K9584	8750	Preferred Pro USB Keyboard - 104 Keys business black
0008660	40K5372	8660	USB Travel Keyboard with UltraNav
0008699	42C0030	8699	IBM PS/2 Keyboard with UltraNav
02R3421	90P0740	8901	Sleek 2-Button Mechanical Ball Mouse - PS/2
40K9491	40K9200	8912	IBM 2-Button Optical Wheel Mouse - USB
40K9492	40K9201	8913	IBM 3- Button Optical Wheel Mouse - USB

Notes:

1. Converts KVM signals for CAT5 cabling for servers with PS/2 KVM ports.

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xSeries 206m tape options

SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
Tape Drives[1]							
39M5664	39M5659	5385	IBM DLTV4 Tape Drive	-	-	-	-
71P9176	39M5656	5355	36/72GB DDS Generation 5 Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	4559HHX 45594UX 45591UX
71P9187	59P6745	5356	80/160GB Half High VS 160 Tape Drive	-	-	-	-
71P9166	59P6746	5359	IBM VXA-2 80/160GB Tape Drive	-	-	-	-
-	87691VX	-	U VXA-320 Tape Autoloader	-	-	-	-
42C3932	39M5657	5365	LTO3 Tape Drive	-	-	-	4559HHX 45594UX
-	39M5641	-	VXA-2 Tape Drive and 5-Pack Media Express Option[2]	-	-	-	-
39M5624	25R0045	5362	IBM 160/320GB VXA3 Tape Drive	-	-	-	-
-	39M5642	-	DLT VS160 Tape Drive and 5-Pack Media Express Option	-	-	-	-
-	39M5643	-	DDS/5 Tape Drive and 5-Pack Media Express Option	-	-	-	-
0005386	39M5658	5386	IBM Half High LTO Generation 2 Tape Drive	-	SCSI	133mm (5.25in) HH	-
Tape Autoloaders							
-	36232LX	-	IBM LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	IBM SDLT 320 1x8 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
External Tape Libraries							
-	3582-L23/ F23	-	Ultrium 2 Tape Library	-	-	-	-
External Tape Enclosures							
-	45591UX	-	1U xSeries Tape Enclosure Rack or Tower	-	Ultra160 (16-bit)	1U Rack	-
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-	Ultra2 (16-bit)	4U Rack	-
-	4559FHX	-	2U Full High Stand Alone SCSI Tape Drive Enclosure	-	-	2U Rack	-
-	4559HHX	-	1U Half High Stand Alone SCSI Tape Drive Enclosure	-	-	1U Rack	-

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SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
-	87651UX	-	IBM 1U Rackmount Tape Enclosure	-	-	-	-
-	8767HHX	-	IBM Half High Tabletop Tape Enclosure	-	-	-	-
-	8768FHX	-	IBM Full High Tabletop Tape Enclosure	-	-	-	-
Associated Options							
42C3912	25R0006	4352	IBM 80GB GoVault	-	-	-	-
0005378	39M5617	5378	GoVault Cartridge	-	-	-	-

SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
Tape Drives1							
71P9166	59P6746	5359	IBM VXA-2 80/160GB Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	4559HHX 45594UX 45591UX
71P9176	71P9145	5355	36/72GB DDS Generation 5 Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	4559HHX 45594UX 45591UX
71P9187	59P6745	5356	IBM 80/160 GB Half High VS160 Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	4559HHX 45594UX 45591UX
-	25R0005	-	Half High LTO Gen 2 Tape Drive	-	-	-	4559HHX 45594UX 45591UX
-	25R0012	-	LTO3 Tape Drive	-	-	-	4559HHX 45594UX
Tape Autoloaders							
-	36232LX	-	IBM LTO2 1x8 Tape Autoloader	-	Ultra160(16-bit)	2U Rack	-
-	36232SX	-	IBM SDLT 320 1x8 Tape Autoloader	-	Ultra320(16-bit)	2U Rack	-
External Tape Libraries							
-	3582-L23/F23	-	Ultrium 2 Tape Library	-	-	-	-
External Tape Enclosures							
-	45591UX	-	1U xSeries Tape Enclosure Rack or Tower	-	Ultra160 (16-bit)	-	-
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-	Ultra2 (16-bit)	-	-

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SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
-	4559FHX	-	2U Full High Stand Alone SCSI Tape Drive Enclosure	-	-	-	-
-	4559HHX	-	1U Half High Stand Alone SCSI Tape Drive Enclosure	-	-	-	-
Associated Options							
-	25R0006	-	80GB EZ-Disk	-	-	-	-

Notes:

1. If two optical drives are selected, a tape drive cannot be selected. If a tape drive is selected then always install in bay 2. If a SCSI tape drive is selected, select SBB 13N2252, IBM Ultra320 SCSI Controller 2.
2. This option contains: option part number of single drive - 39M5656 and option part number 5 Pack DDS Gen 5 (36/72 GB) Tape Media - 71P9158.

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Chapter 7. xSeries 226

Table 15. xSeries 226 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	Form Factor[5]	Power Supply Quantity (Std/Max)[6]	Hot-Swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet[7]	Storage Controller[8]	Internal HDD Interface	Internal HDD Storage (Std/Max)[9, 10]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8648-1BY[11]	-	3.0/800 1MB L2	1 / 2	512MB/ 16GB	Tower	2 / 2	P H	-	1GB	Dual U320	Hot-swap	0/ 1.8TB	CD-ROM (48x-20x)	9 / 7	6 / 6
8648-40Y[11]	-	3.0/800 2MB L2	1 / 2	512MB/ 16GB	Tower	1 / 1	-	-	1GB	SATA	Simple-swap	80GB/ 1.8TB	CD-ROM (48x-20x)	7 / 5	6 / 6
8648-50Y[11]	-	3.2/800 2MB L2	1 / 2	512MB/ 16GB	Tower	1 / 1	-	-	1GB	SATA	Simple-swap	80GB/ 1.8TB	CD-ROM (48x-20x)	7 / 5	6 / 6
8648-60Y[11]	-	3.4/800 2MB L2	1 / 2	512MB/ 16GB	Tower	1 / 1	-	-	1GB	SATA	Simple-swap	80GB/ 1.8TB	CD-ROM (48x-20x)	7 / 5	6 / 6
8648-4AY[11]	-	3.0/800 2MB L2	1 / 2	512MB/ 16GB	Tower	1 / 1	H	-	1GB	Dual U320	Hot-swap	0/ 1.8TB	CD-ROM (48x-20x)	9 / 7	6 / 6
8648-5AY[11]	-	3.2/800 2MB L2	1 / 2	512MB/ 16GB	Tower	1 / 1	H	-	1GB	Dual U320	Hot-swap	0/ 1.8TB	CD-ROM (48x-20x)	9 / 7	6 / 6
8648-6AY[11]	-	3.4/800 2MB L2	1 / 2	512MB/ 16GB	Tower	1 / 1	H	-	1GB	Dual U320	Hot-swap	0/ 1.8TB	CD-ROM (48x-20x)	9 / 7	6 / 6
8648-4BY[11]	-	3.0/800 2MB L2	1 / 2	512MB/ 16GB	Tower	2 / 2	P H	-	1GB	Dual U320	Hot-swap	0/ 1.8TB	CD-ROM (48x-20x)	9 / 7	6 / 6
8648-5BY[11]	-	3.2/800 2MB L2	1 / 2	512MB/ 16GB	Tower	2 / 2	P H	-	1GB	Dual U320	Hot-swap	0/ 1.8TB	CD-ROM (48x-20x)	9 / 7	6 / 6
8648-6BY[11]	-	3.4/800 2MB L2	1 / 2	512MB/ 16GB	Tower	2 / 2	P H	-	1GB	Dual U320	Hot-swap	0/ 1.8TB	CD-ROM (48x-20x)	9 / 7	6 / 6
8648-32Y[11]	-	2.8/800 2MB L2	1 / 2	512MB/ 16GB	Tower	1 / 1	-	-	1GB	SATA	Simple-swap	80GB/ 1.8TB	CD-ROM (48x-20x)	7 / 4	6 / 6

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Table 15. xSeries 226 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	Form Factor[5]	Power Supply Quantity (Std/Max)[6]	Hot-Swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet[7]	Storage Controller[8]	Internal HDD Interface	Internal HDD Storage (Std/Max)[9,10]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8648-34Y[11]	-	2.8/8002 MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0GB/1.8TB	CDROM (48x-20x)	9/7	6/6
8648-36Y[11]	-	2.8/800 2MB L2	1/2	512MB/16GB	Tower	2/2	H	-	1GB	Dual U320	Hot-swap	0GB/1.8TB	CDROM (48x-20x)	9/7	6/6
8648-B2Y[11]	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	1/1	-	-	1GB	SATA	Simple-swap	80GB/1.8TB	CDROM (48x-20x)	7/4	6/6
8648-B4Y[11]	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0GB/1.8TB	CDROM (48x-20x)	9/7	6/6
8648-B6Y[11]	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	2/2	P H	-	1GB	Dual U320	Hot-swap	0GB/1.8TB	CDROM (48x-20x)	9/7	6/6
8648-E2Y[11]	-	2.8/800 2MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0GB/1.8TB	CDROM (48x-20x)	9/7	6/6
8488-40Y	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	1/1	-	-	1GB	SATA	Simple-swap	80GB/1.8TB	CDROM (48x-20x)	7/5	6/6
8488-50Y	-	3.2/800 2MB L2	1/2	512MB/16GB	Tower	1/1	-	-	1GB	SATA	Simple-swap	80GB/1.8TB	CDROM (48x-20x)	7/5	6/6
8488-60Y	-	3.4/800 2MB L2	1/2	512MB/16GB	Tower	1/1	-	-	1GB	SATA	Simple-swap	80GB/1.8TB	CDROM (48x-20x)	7/5	6/6
8488-4AY	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CDROM (48x-20x)	9/7	6/6
8488-5AY	-	3.2/800 2MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-6AY	-	3.4/800 2MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-1BY[11]	-	3.2/800 2MB L2	1/2	512MB/16GB	Tower	2/2	P H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6

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Table 15. xSeries 226 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	Form Factor[5]	Power Supply Quantity (Std/Max)[6]	Hot-Swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet[7]	Storage Controller[8]	Internal HDD Interface	Internal HDD Storage (Std/Max)[9, 10]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8488-4BY	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	2/2	P H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-5BY	-	3.2/800 2MB L2	1/2	512MB/16GB	Tower	2/2	P H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-6BY	-	3.4/800 2MB L2	1/2	512MB/16GB	Tower	2/2	P H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-32Y	-	2.8/800 2MB L2	1/2	512MB/16GB	Tower	1/1	-	-	1GB	SATA	Simple-swap	80GB/1.8TB	CD-ROM (48x-20x)	7/4	6/6
8488-34Y	-	2.8/800 2MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-36Y	-	2.8/800 2MB L2	1/2	512MB/16GB	Tower	2/2	H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-B2Y[11]	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	1/1	-	-	1GB	SATA	Simple-swap	80G/1.8TB	CD-ROM (48x-20x)	7/4	6/6
8488-B4Y[11]	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	1/1	H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
8488-B6Y[11]	-	3.0/800 2MB L2	1/2	512MB/16GB	Tower	2/2	P H	-	1GB	Dual U320	Hot-swap	0/1.8TB	CD-ROM (48x-20x)	9/7	6/6
xSeries 226 Storage Servers (NAS)															
8488-70Y[12]	Jun 27	3.0/800 2MB L2	1/2	512MB/16GB[13]	Tower	1/1	-	N	1GB	SATA[14]	ServeRAID 7t	1TB[14]	CD-ROM (48x-20x)	7/1	6/5
8488-80Y[12]	Jun 27	3.4/800 2MB L2	1/2	1GB/16GB[13]	Tower	1/1	-	N	1GB	U320[15]	ServeRAID 6i+	72GB[15]	CD-ROM (48x-20x)	9/5	5/4

Note: A Network Attached Storage (NAS) server is built and deployed to handle file serving only. The servers and clients that utilize the NAS file server connect through standard Ethernet connections and communicate with standard TCP/IP protocols.

Note: xSeries 226 also provides four USB ports (two front, two rear), two 9-pin serial ports, one 25-pin parallel port, keyboard port, mouse port, video port and an integrated ATI Radeon 7000M graphics controller with 16 MB of video memory. A keyboard and mouse is also provided.

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Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8648-00Y is 8648-00U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. Not available from IBM after this date. Business Partner Inventory may be available.
3. Intel Xeon processor with Extended Memory 64 Technology (EM64T), L2 cache and an 800MHz (quad-pumped) Front Side Bus (FSB).
4. High-speed, two-way interleaved PC2-3200 RDIMMs. Maximum capacity requires replacing the standard DIMMs. x226 will support 16GB of memory using a supported 4GB DIMM.
5. A 4U tower-to-rack conversion kit is available. See 'Power and Accessories.'
6. See 'Power and Accessories' section for more information on the power supplies.
7. Broadcom 5721 copper gigabit Ethernet controller with Wake-on-LAN support.
8. Integrated dual-channel Ultra320 SCSI storage controller on SCSI models, two SATA controllers on SATA models supporting one SATA HDD per controller. Both the SCSI and SATA integrated controllers support Integrated ServeRAID-7e (RAID-0 and RAID-1).
9. Maximum storage capacity for SATA models is based on four 250GB SATA HDDs which requires installation of the optional ServeRAID-7t controller and replacement of the standard HDD. Standard configuration will support two SATA HDDs.
10. Maximum storage capacity for hot-swap SCSI models is based on six 146.8GB hot-swap HDDs.
11. The 8648 machine type carries a one year limited parts and labor warranty. 8488 machine type carries a three year limited parts and labor warranty.
12. xSeries 226 Storage Server NAS is preconfigured with Microsoft Windows Storage Server 2003 included and preinstalled on the system. IBM Storage Server is limited to file and print server function only.®
13. xSeries 226 Storage Server operating system supports a maximum of 4GB of memory.
14. xSeries 226 Storage Server NAS includes a preconfigured ServeRAID 7t adapter and four SATA drives setup for RAID-1 and RAID-5.
15. xSeries 226 Storage Server NAS includes a preconfigured ServeRAID 6i+ adapter and two 36.4GB Hot Swap SCSI 15K disk drives setup for RAID-1. The Windows Storage Server 2003 operating system is installed on these drives.

xSeries 226 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
39M6395	40K2500	0638	2.8GHz/800MHz-2MB L2 Cache Xeon Processor	A2Y, A4Y, A6Y, E2Y, EBY
13M8281	40K2515	0316	3.0GHz/800MHz 2MB L2 Cache, Xeon Processor	4xY, B2Y, B4Y, B6Y, E3Y, E4Y, E5Y, ECY, 7OY
13M8282	40K2516	0317	3.2GHz/800MHz 2MB L2 Cache, Xeon Processor	5xY, C2Y, C4Y, C6Y, EFY
13M8283	40K2517	0318	3.4GHz/800MHz 2MB L2 Cache, Xeon Processor	6xY, D2Y, D4Y, D6Y, E4Y, EGY, EHY, 8OY
Note: x226 processor options support Intel's Extended Memory 64 Technology (EM64T).				

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
13N1622	13N0671	0367	2.8GHz/800MHz-1MB L2 Cache Xeon Processor	0xY
13N1431	13N0672	0368	3.0GHz/800MHz 1MB L2 Cache, Xeon Processor	1xY

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SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
25R7356	25R8900	0380	3.0GHz/800MHz 2MB L2 Cache, Xeon Processor	4xY
25R7357	25R8901	0382	3.2GHz/800MHz 2MB L2 Cache, Xeon Processor	5xY
25R7358	13N0676	0383	3.4GHz/800MHz 2MB L2 Cache, Xeon Processor	6xY
Note: x226 processor options support Intel's Extended Memory 64 Technology (EM64T).				

Notes:
1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

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xSeries 226 memory options

SBB Number[1]	Option Number	Feature Code	Memory Options
90P0870	-	0501	256MB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
-	73P3523	-	512MB (2x256MB) PC2-3200 ECC DDR2 RDIMM Kit
73P2874	-	0504	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
-	39M5809	-	2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit
73P2875	-	0512	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
73P4794	-	0505	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill)
-	39M5812	-	4GB (2x2GB) PC2-3200 ECC DDR2 RDIMM Kit
90P1218	-	0502	512MB DDR-II SDRAM DIMM
-	39M5818	-	1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit
-	39M5821	-	1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit
-	39M5858	-	512MB (1x512MB) PC2-3200 Single DIMM ECC DDR SDRAM RDIMM Kit
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5810	-	0553	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5813	-	0593	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill) Single rank
39M5816	-	0541	512MB DDR-II SDRAM DIMM (non chip-kill)
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
30R5147	30R5145	0535	4GB PC2-3200R CL3 ECC DDR2 SDRAM RDIMM

Note: 16GB of memory is supported via six DIMM slots with currently available options. x226 supports 16GB of memory using a 4GB DIMM. Due to two-way interleaving, installation of memory DIMMs in matched pairs is required beginning with DIMM slots 1 and 2, then 3 and 4, then 5 and 6.

SBB Number[1]	Option Number	Feature Code	Memory Options
90P0870		0501	256MB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P3523		512MB (2x256MB) PC2-3200 ECC DDR2 RDIMM Kit
90P1218		0502	512MB DDR-II SDRAM DIMM
	73P3522		1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit[2]
	73P2865		1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit[3]
73P2874		0504	1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P2866		2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit[3]
73P2875		0512	2GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
73P4794		0505	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill)
	73P2867		4GB (2x2GB) PC2-3200 ECC DDR2 RDIMM Kit[3]
73P2873		0503	512MB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P4206		512MB (1x512MB) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM

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SBB Number[1]	Option Number	Feature Code	Memory Options
Note: 16GB of memory is supported via six DIMM slots with currently available options. x226 supports 16GB of memory using a 4GB DIMM. Due to two-way interleaving, installation of memory DIMMs in matched pairs is required beginning with DIMM slots 1 and 2, then 3 and 4, then 5 and 6.			

Notes:
1. Quantity two of each SBB PN must be ordered to equal its corresponding option.
2. If xSeries 226 comes standard with a single 512MB DIMM, a single 512MB DIMM (P/N 90P1218) must be added to slot 2 before adding more memory. After adding a single 512MB DIMM (P/N 90P1218), additional memory can be added in matched pairs.
3. Supports Chipkill. Mixing Chipkill DIMMs with nonChipkill DIMMs will disable Chipkill function.

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Table 16. Standard Memory Configuration

Model	Std. DIMM Configuration
00Y, 0AY, 0BY, 10Y, 1AY, 1BY, 20Y, E3Y	2 x 256MB PC2-3200 ECC DDR2 RDIMM (nonChipkill)
0EY, 4EY, E4Y, E5Y, EFY, EGY	2 x 512MB PC2-3200 ECC DDR2 RDIMM (nonChipkill)
40Y, 4AY, 4BY, 50Y, 5AY, 5BY, 60Y, 6AY, 6BY, A2Y, A4Y, A6Y, B2Y, B4Y, B6Y, C2Y, C4Y, C6Y, D2Y, D4Y, D6Y, E2Y, EBY, ECY, EHY	1 x 512MB PC2-3200 ECC DDR2 RDIMM (nonChipkill)
E7Y	4 x 512MB PC2-3200 ECC DDR2 RDIMM (nonChipkill)

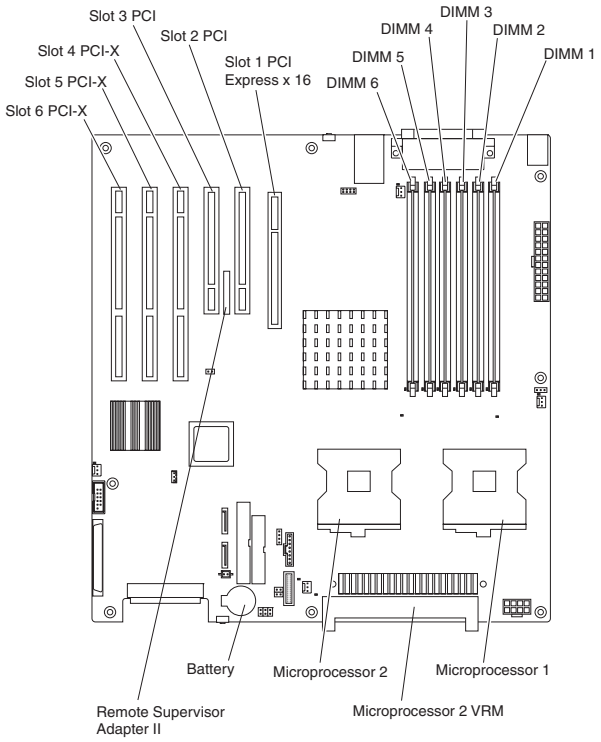

Figure 16. xSeries 226 System Board

xSeries 226 internal cabling

Hot-swap SCSI models

xSeries 226 hot-swap SCSI models are cabled internally with a single, 1-drop LVD SCSI cable, connecting one channel of the integrated, dual-channel Ultra320 SCSI controller to the hot-swap backplane.

Simple-swap SATA

All models provide a single ATA-100 IDE connector supporting two IDE devices, one device being the standard optical cabled via a 2-drop IDE cable.

xSeries 226 simple-swap SATA models provide two point-to-point SATA cables connecting the two integrated SATA controllers to the SATA simple-swap backplane.

An optional SCSI cable is available to connect the second SCSI channel to the back of the chassis, enabling an external 0.8mm VHDCI SCSI connector.

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xSeries 226 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty[2]
SATA HDDs[3]						
40K6873	40K6872	5173	250GB 7.2K rpm SATA HDD	SL	4 ... 7	4
90P1398	40K6864	5206	80GB 7200 RPM Serial ATA with EZ tray	SL	4 ... 7	4
90P1399	40K6868	5219	160GB 7200 RPM Serial ATA with EZ tray	SL	4 ... 7	4
Hot-swap Ultra320 HDDs[3]						
32P0746	32P0726	5214	36.4GB 10K rpm Ultra320 80-pin HDD - Gen II	-	4 ... 9	6
32P0747	32P0727	5215	73.4GB 10K rpm Ultra320 80-pin HDD - Gen II	-	4 ... 9	6
32P0748	32P0728	5216	146.4GB 10K rpm Ultra320 80-pin HDD - Gen II	-	4 ... 9	6
32P0744	32P0734	5217	36.4GB 15K rpm Ultra320 SCSI Hot-Swap HDD	-	4 ... 9	6
32P0735	32P0735	5218	73.4GB 15K rpm Ultra320 SCSI Hot-Swap HDD	-	4 ... 9	6
40K1055	40K1023	5165	73.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	SL	4 ... 9	6
40K1056	40K1024	5166	146.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	SL	4 ... 9	6
40K1057	40K1025	5167	300GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	SL	4 ... 9	6
40K1058	40K1026	5168	36.4GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	SL	4 ... 9	6
40K1059	40K1027	5169	73.4GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	SL	4 ... 9	6
40K1060	40K1028	5170	146.4GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	SL	4 ... 9	6
Optical Devices						
-	73P3300	-	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	-	-	-
-	73P3305	-	IBM Multi-Burner Plus	-	-	-
02R3278	22P6950	4102	IBM 16X Max RAM-Read DVD-ROM Drive	HH	1, 2	2
26K8792	32R2905	4103	48X/32X/48X/16X Max CD-RW/DVD-ROM Combo Drive	HH	1, 2	2
71P8149	10K3782	4116	48x-20x CD-ROM Internal IDE Drive (Black)	HH	1, 2	2
90P4239	22P7042	4107	48X/32X/48X Max CD-RW Drive	HH	1, 2	2
39M6344	32R2905	4139	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	HH	1, 2	2

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty[2]
			External Storage Expansion Units[4]	**Form Factor**		
39R6615	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	17401RU	-	FAStT EXP700 Storage Expansion Unit	Rack (3U)		
-	1724100	-	FAStT100 Storage Server	Rack (3U)		
-	172260U	-	FAStT600 Storage Server	Rack (3U)		
-	17226LU	-	FAStT600 Entry Storage Server	Rack (3U)		

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty[2]
			Simple-swap SATA HDDs[3]			
90P1398	73P8002	5206	80GB 7200 rpm Simple-swap SATA HDD	SL	4 ... 7	4
90P1399	73P8003	5219	160GB 7200 rpm Simple-swap SATA HDD	SL	4 ... 7	4
-	73P8006	-	250GB 7200 rpm Simple-swap SATA HDD	SL	4 ... 7	4
			Hot-swap Ultra320 HDDs[3]			
-	90P1380	-	36GB 15K rpm Ultra320 SCSI Hot-swap HDD	SSL	-	-
-	90P1381	-	73GB 15K rpm Ultra320 SCSI Hot-swap HDD	SSL	-	-
90P1329	90P1305	5202	73.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	SSL	4 ... 9	6
-	32P0727	-	73.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	-	-	-
-	32P0728	-	146.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	-	-	-
-	90P1382	-	146GB 15K rpm Ultra320 SCSI Hot-swap HDD	SSL	-	-
90P1330	90P1306	5203	146.8GB 10K rpm Ultra320 SCSI Hot-swap HDD	SSL	4 ... 9	6
			Optical Devices			
26K8792	32R2905	4103	DVD-ROM/CD-RW Combo Drive	HH	1, 2	2
26K8793	32R2906	4104	Multiburner Drive	HH	1, 2	2
24R9301	-	4115	48X CDROM Drive	HH	1, 2	2
02R3278	-	-	DVD-ROM Drive	HH	1, 2	2

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty[2]
			External Storage Expansion Units[4]	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	17401RU	-	FAStT EXP700 Storage Expansion Unit	Rack (3U)		
-	1724100	-	FAStT100 Storage Server	Rack (3U)		
-	172260U	-	FAStT600 Storage Server	Rack (3U)		
-	17226LU	-	FAStT600 Entry Storage Server	Rack (3U)		

Notes:
1. May require removing standard devices.
2. Four SATA HDDs are supported within the installation of the optional ServeRAID-7t controller. Two HDDs are supported in the standard configuration.
3. Mixing SATA and SCSI HDDs is not supported.
4. FAStT options require an optional Fibre controller be installed in the system.

Bay	Form Factor	Height	Front Access	Usage
1	133mm (5.25in)	HH	Yes	Std. Optical
2	133mm (5.25in)	HH	Yes	Optical/Tape
3	89mm (3.5in)	SL	Yes	Std. FDD
4	89mm (3.5in)	SL	Yes	HDD
5	89mm (3.5in)	SL	Yes	HDD
6	89mm (3.5in)	SL	Yes	HDD
7	89mm (3.5in)	SL	Yes	Std. HDD[1]
8[2]	89mm (3.5in)	SL	Yes	HDD
9[2]	89mm (3.5in)	SL	Yes	Std. HDD[1]

Notes:
1. Standard HDD is installed in bay 7 on SATA models; bay 9 on SCSI models.
2. Bays 8 and 9 are available on SCSI models only.

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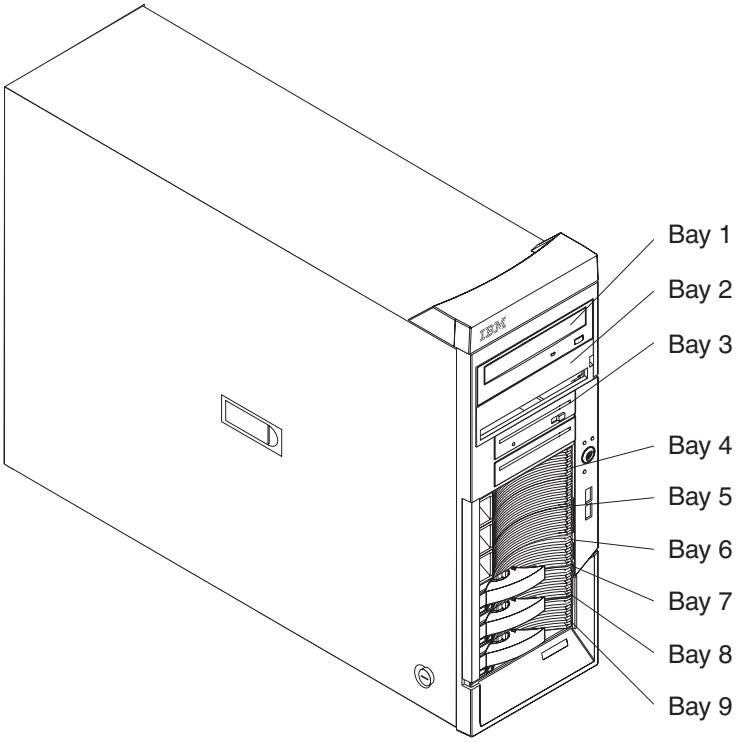

Figure 17. xSeries 226 front view (SCSI)

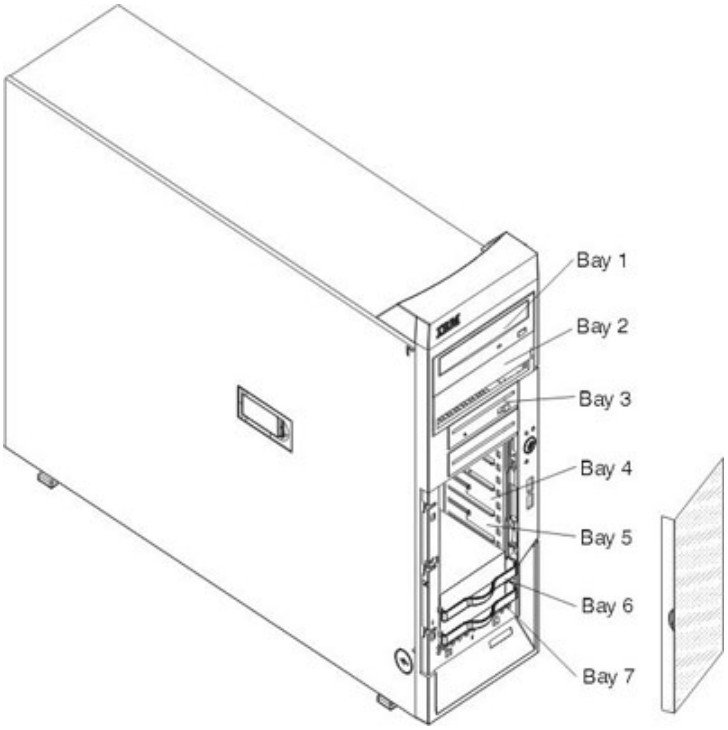

Figure 18. xSeries 226 front view (SATA)

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xSeries 226 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
Storage Controllers[2]							
39R8819	39R8815	1685	ServeRAID-6M Controller (128MB Cache)	Full	64-bit/ 133MHz	4, 5	-
39R8820	39R8816	1686	ServeRAID-6M Controller (256MB Cache)	Full	64-bit/ 133MHz	4, 5	-
39R8797	39R8793	1682	ServeRAID-6i+ Controller	Half	64-bit/ 133MHz	5	-
71P8614	71P8594	1652	IBM Ultra320 SCSI Controller	-	-	4, 5	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	Half	64-bit/ 133MHz	4, 5	-
39R8809	39R8805	1683	ServeRAID-7t SATA Controller	Half	64-bit/ 66MHz	4, 5	-
24P0963	24P0960	1650	FAStT FC2-133 Host Bus Adapter Half	-	-	-	-
39R8797	39R8793	1682	IBM ServeRAID 6i+ Integrated RAID Controller	-	-	-	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	-	-	-	-
Fibre Storage Controllers and Options[4]							
-	1724100	-	FAStT100 Storage Server	-	-	-	-
-	172260U	-	FAStT600 Storage Server				
-	17226LU	-	FAStT600 Entry Storage Server	-	-	-	-
-	17421RU	-	FAStT700 Storage Server	-	-	-	-
-	174290U	-	FAStT900 Storage Server	-	-	-	-
-	202612E	-	TotalStorage SAN 12M-1 Switch, 12-port	-	-	-	-
-	2109F16	-	SAN Fibre Channel Switch, 16-port	-	-	-	-
Networking							
30R5005	30R5001	1566	10 Gb Ethernet Sr Server Adapter	Half	-	-	-
02R2647	34L5001	1504	IBM 16/4 Token-Ring PCI Management Adapter	-	-	-	-
33P2970	22P6901	1506	Wireless PCI	-	-	-	-
06P2313	34L5201	1505	IBM High Speed 100/16/4 PCI Token-Ring Adapter	-	-	-	-
73P2705	73P2701	1513	PRO/1000 MT Dual Port Server Ethernet Adapter	-	-	-	-
32P8862	33L4618	1524	IBM V.90 PCI Data Fax Modem	-	-	-	-
32P9298	31P6401	1503	NetXtreme 1000 T Dual Port Ethernet Adapter (copper)	Half	64-bit/ 133MHz	4 ... 6	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	-	-	-	-
31P9605	39Y6105	1512	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/ 133MHz	4 ... 6	-
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	Half	64-bit/ 133MHz	4 ... 6	-
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	Half	64-bit/ 133MHz	4... 6	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	Half	64-bit/ 133MHz	4... 6	-
System Management							
13N0761	59P2984	1609	Remote Supervisor Adapter II	Half	-	-	-
Other I/O							
-	00N6882	-	NetfinityFAStT500 Mini Hub	-	-	-	-

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
Storage Controllers[2]							
02R0996	02R0988	1653	ServeRAID-6M Controller (256MB Cache)	Full	64-bit/133MHz	4 ... 6	-
02R0995	32P0033	1654	ServeRAID-6M Controller (128MB Cache)	Full	64-bit/133MHz	4 ... 6	-
13N2194	13N2190	1665	ServeRAID-6i+ Controller	Half	64-bit/133MHz	5	-
-	71P8648	-	ServeRAID-7t SATA Controller	Half	64-bit/66MHz	4 ... 6	-
-	13N2249	-	Ultra320 SCSI Controller 2[3]	Half	64-bit/133MHz	4 ... 6	-
Fibre Storage Controllers and Options[4]							
24P0963	24P0960	1650	FC2-133 Host Bus Adapter	Half	64-bit/133MHz	4 ... 6	-
-	1724100	-	FAStT100 Storage Server	-	-	-	-
-	172260U	-	FAStT600 Storage Server				
-	17226LU	-	FAStT600 Entry Storage Server	-	-	-	-
-	17421RU	-	FAStT700 Storage Server	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
-	174290U	-	FAStT900 Storage Server	-	-	-	-
-	2005H16	-	TotalStorage SAN Fabric Switch Model H16	-	-	-	-
-	202612E	-	TotalStorage SAN 12M-1 Switch, 12-port	-	-	-	-
Networking							
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	Half	32-bit/33MHz	2 ... 6	-
32P9298	31P6401	1503	NetXtreme 1000 T Dual Port Ethernet Adapter (copper)	Half	64-bit/133MHz	4 ... 6	-
31P9605	31P9601	1512	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/133MHz	4 ... 6	-
73P3505	73P3501	1508	NetXtreme 1000 Express Ethernet Adapter	Half	PCI E 1X	4 ... 6	-
73P4005	73P4001	1509	NetXtreme 1000 SX + Fiber Ethernet Adapter[5]	Half	64-bit/133MHz	4 ... 6	-
73P4105	73P4101	1510	NetXtreme 1000 T + Ethernet Adapter	Half	64-bit/133MHz	4 ... 6	-
73P4205	73P4201	1511	NetXtreme 1000 T + Dual Port Ethernet Adapter	Half	64-bit/133MHz	4 ... 6	-
System Management							
02R1676	59P2984	-	Remote Supervisor Adapter II	Half	32-bit/33MHz	2	-
Other I/O							
-	-	-	-	-	-	-	-

Notes:
1. xSeries 226 does not have any Active-PCI slots.
2. Currently only one type of RAID is supported at a time; for example, ServeRAID-7e (RAID-0 or RAID-1 with integrated controller), ServeRAID-4Lx or ServeRAID-7t, etc.
3. Support is for tape only. Tape support requires the PCI slot in which the adapter is installed be defined as the boot device slot via the BIOS setup utility.
4. See Fibre Channel Solutions Overview section for additional configuration information.

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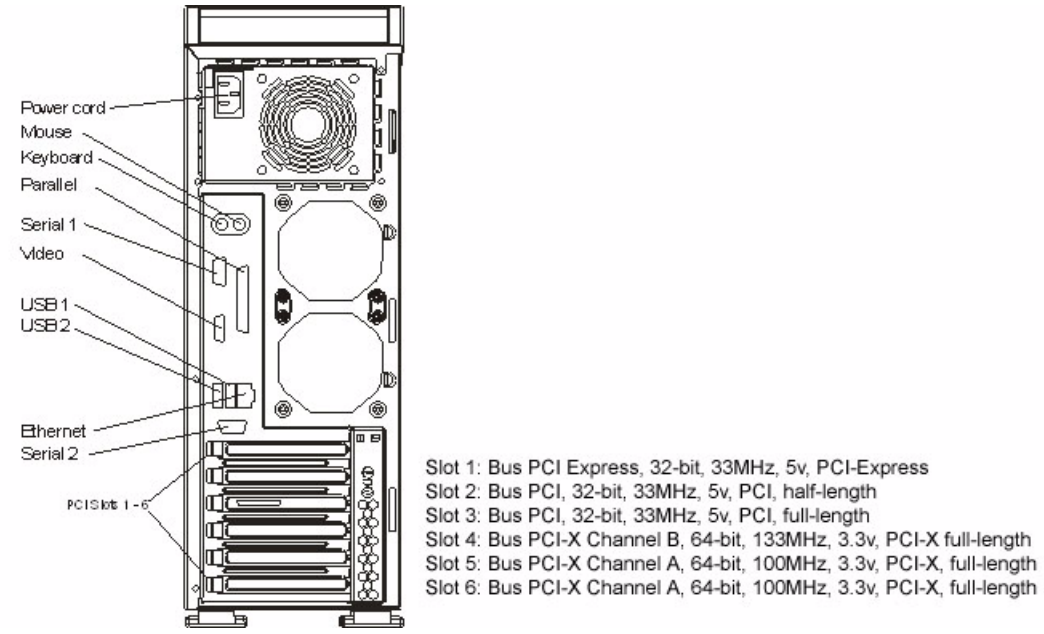
Power cord
Mouse
Keyboard
Parallel
Serial 1
Video
USB 1
USB 2
Ethernet
Serial 2
PCI Slots 1 - 6
Slot 1: Bus PCI Express, 32-bit, 33MHz, 5v, PCI-Express
Slot 2: Bus PCI, 32-bit, 33MHz, 5v, PCI, half-length
Slot 3: Bus PCI, 32-bit, 33MHz, 5v, PCI, full-length
Slot 4: Bus PCI-X Channel B, 64-bit, 133MHz, 3.3v, PCI-X full-length
Slot 5: Bus PCI-X Channel A, 64-bit, 100MHz, 3.3v, PCI-X, full-length
Slot 6: Bus PCI-X Channel A, 64-bit, 100MHz, 3.3v, PCI-X, full-length

Figure 19. xSeries 226 rear view

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xSeries 226 power and accessories

Option Number	Description
	Power Distribution Units[1]
39Y8934	DPI 32amp/250V Front End PDU w/ IEC 309 P+N+G connector
39Y8951	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
39Y8935	32amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
39Y8938	30amp/125V Front-end PDU with NEMA L5-30P connector
39Y8939	30amp/250V Front-end PDU with NEMA L6-30P connector
39Y8940	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
39Y8999	32A/230V 3P w/IEC309 3P+N+Gnd Conn
39Y9000	60A/208V 3P w/IEC309 3P+Gnd Conn
73P5855	60A/208V 1P w/IEC309 2P+Gnd Conn
73P5856	63A/320V 1P w/IEC309 P+N+Gnd Conn
	Uninterruptible Power Supply (UPS)[2]
2130R1X	UPS 750TLV
2130R2X	UPS 750THV
2130R3X	UPS 1000TLV
2130R4X	UPS 1000THV
2130R5X	UPS 1500TLV
2130R6X	UPS 1500THV
2130R7X	IBM UPS 750T JV
2130R8X	IBM UPS 1000T JV
2130R9X	IBM UPS 1500T JV
2130R31	UPS3000XHV3
32P1020	APC 2U Smart-UPS 1400RMB
32P1022	APC 2U Smart-UPS 1400RMiB
32P1692	UPS Extend Run Battery Pack[3]
37L6861	APC Smart-UPS 5000RMB4
37L6862	APC Smart-UPS 5000RMiB4
94G40v76	APC Smart-UPS 2200I (220-240V)

Notes:
1. Nonredundant power models include a single 530w nonhot-swap power supply and line cord. Redundant power models include two 514w power supplies and two line cords.
2. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate (minutes).
3. Height is 2U. See Rack Cabinets and Options section for supported IBM racks.

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SBB Number	Option Number	Feature Code	Description
			Racks
-	93061RX	-	NetBay11 Standard Rack Cabinet
-	9306250	-	NetBay25 Standard Rack Cabinet
-	9306420	-	NetBay42 Standard Rack Cabinet
-	93084RX	-	NetBay42 Expansion Rack Cabinet
-	93084XX	-	NetBay42 Expansion Rack
-	9306421	-	NetBay42 Standard Expansion Rack Cabinet
			Rack/Tower Conversion Kits
-	37l6888	-	Netfinity Rack Flat Panel Adapter Kit II
-	26k6095	-	IBM xSeries 4Ux24 Tower to Rack Kit
			Rack Console Connectivity[1]
-	1735LGX	-	NetBAY Local Console Manager
-	17351LX	-	1x4 port Console Switch
-	17352LX	-	2x8 port Console Switch
-	17351GX	-	NetBay Local Console Manager
-	17352GX	-	NetBay Remote Console Manager
-	39M2896	-	250mm KVM Conversion Option
-	39M2897	-	1.5m KVM Conversion Option
			Monitors
-	23K4802	-	1U 17" Flat Panel Display Console Kit with US keyboard
-	23K4803	-	1U 17" Flat Panel Display Console Kit without US keyboard
-	17231UX	-	1U Flat Panel Monitor Console Kit (with US Space Travel keyboard)
-	17231RX	-	1U Flat Panel Monitor Console Kit (without keyboard)
-	17232UX	-	U Flat Panel Monitor Console Kit (with PS/2 US keyboard)[2]
-	17233RX	-	2U Flat Panel Monitor Console Kit (without keyboard)[2]
-	6636HB1	-	L150p ThinkVision 15in LCD Flat Panel Monitor (381mm, 15in viewable), business black
-	6636AB1	-	L150 ThinkVision 15in Flat Panel Monitor
-	6734HB0	-	L170 ThinkVision 17in LCD Flat Panel Monitor (432mm, 17in viewable), business black
-	6734AB0	-	L170p ThinkVision 17in Flat Panel Monitor
-	673766N	-	C170 ThinkVision 17in CRT Flat Panel Monitor (406.4mm, 16in viewable), business black
-	633147N	-	E54 Color Monitor 15in (350mm, 13.8in viewable image), business black
-	63324HN	-	E74 Color Monitor 17in (406mm, 16in viewable image), business black
-	32P1703	-	NetBay 2U Flat Panel Monitor Console Kit (without keyboard)
-	32P1702	-	NetBay 2U Flat Panel Monitor Console Kit (with keyboard)
-	49387NU	-	IBM C117 17" CRT Monitor
25R4184	494215U	7602	IBM T115 15" TFT Monitor
-	494317U	-	IBM T117 17" TFT Monitor

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SBB Number	Option Number	Feature Code	Description
			Keyboard and Mouse
02R3206	31P7415	8800	Preferred Pro Full-size Keyboard - 104 Keys, business black
-	31P8950	-	USB Keyboard with UltraNav - US English[1]
42C1473	40K5372	8693	USB Keyboard with UltraNav[1]
89P5358	10k3849	8876	USB 106-key Preferred UES with 2-port USB Hub (Business Black)[1]
18R9856	73P2620	8881	USB Keyboard Enhanced Performance Keyboard - US English[1]
-	06P4069	-	USB Optical Wheel Mouse[1]
-	28L3673	-	Sleek 2-Button Mouse, business black
Note: Refer to the Rack Cabinets and Options section for more information concerning IBM racks and rack-supported devices.			

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SBB Number	Option Number	Feature Code	Description
			Rack/Tower Conversion Kits
-	26K6122	-	4U Extended Depth Tower to Rack Conversion Kit 3
			Rack Console Connectivity[1]
-	1735L04	-	NetBay Local Console Manager
-	1735R16	-	NetBay Remote Console Manager
-	32P1636	-	250mm KVM Conversion Option
-	32P1652	-	1.5m KVM Conversion Option
			Monitors
-	90P0717	-	L150p 15in LCD Flat Panel Monitor (381mm, 15in viewable image), business black
-	17231UX	-	1U Flat Panel Monitor Console Kit (with US Space Travel keyboard)
-	17231NX	-	1U Flat Panel Monitor Console Kit (without keyboard)
-	17232UX	-	2U Flat Panel Monitor Console Kit (with PS/2 US keyboard)[2]
-	17232NX	-	2U Flat Panel Monitor Console Kit (without keyboard)[2]
-	90P0726	-	C170 17in CRT Flat Panel Monitor (406.4mm, 16in viewable image), business black
			Keyboard and Mouse
02R3206	25R6968	8800	Preferred Pro Full-size Keyboard - 104 Keys, business black
-	90P0777	-	USB Keyboard Enhanced Performance Keyboard - US English
-	73P3144	-	Space Travel PS2 Keyboard - US English
-	39M7228	-	USB Travel Keyboard with UltraNav - US English
02R3421	90P0740	8901	Sleek 2-Button Mouse, business black
-	90P0743	-	USB Optical Wheel Mouse
Note: Refer to the Rack Cabinets and Options section for more information concerning IBM racks and rack-supported devices.			

Notes:
1. USB accessories are not compatible with the NetBay console switches. They attach to a single USB-capable server.
2. Includes a 15in flat panel monitor.

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xSeries 226 tape options

SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported[1]	Storage Interface	Form Factor	Ext Tape Encl
39M5664	39M5659	5385	IBM DLTV4 Tape Drive	-	-	-	-
32P8861	00N7991	5353	20/40GB DDS/4 4-m Internal Tape Drive	-	-	-	-
32P8860	24P2398	5350	40/80GB DLT1 Internal Half-High Tape Drive	-	-	-	-
49P3228	48P7042	5354	20/40GB TR7 Internal Tape Drive	-	-	-	-
71P9165	59P6744	5358	200/400GB LTO Tape Drive	-	-	-	-
71P9166	59P6746	5359	VXA-2 Tape Drive	-	-	-	-
71P9187	59P6745	5356	20/40GB DDS/5 Internal Tape Drive	-	-	-	-
-	59P6719	-	40/80GB DLT VS80 Internal SCSI Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
24P7303	59P6736	5361	160/320GB SDLT SCSI Tape Drive Option	-	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
Tape Autoloaders							
-	36232LX	-	200/400GB 2U LTO Generation 2 Tape Autoloader 3623 Model 2LX	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	1.28TB/2.56TB 36232SX SDLT320 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
-	87691VX	-	1U VXA-320 Tape Autoloader	-	-	-	-
External Tape Libraries							
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-
External Tape Enclosures							
-	3503B1X	-	5.25" FH SCSI Tape Enclosure	-	-	-	-
Associated Options							
42C3912	25R0006	4352	IBM 80GB GoVault	-	-	-	-

Note: The integrated SCSI controller is available on SATA models for tape support only (internal or external).

Note: Additional tape drive and tape library attributes, requirements and options can be found in the Tape Drive Attributes and Tape Library Attributes appendices, respectively.

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SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported[1]	Storage Interface	Form Factor	Ext Tape Encl
49P3228	48P7042	5354	20/40GB TR7 Internal IDE Tape Drive	2	Std. IDE	89mm (3.5in) SL or 133mm (5.25in) HH	-
32P8861	00N7991	5353	20/40GB DDS/4 4mm Internal Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	0034B0X
71P9176	71P9145	5355	36/72GB DDS/5 Internal SCSI Tape Drive	2	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	-
71P9166	59P6746	5359	80/160GB VXA-2 SCSI Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6717	-	100/200GB LTO Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6719	-	40/80GB DLT VS80 Internal SCSI Tape Drive	2	Ultra2 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6745	-	80/160GB DLT VS160 SCSI Tape Drive	2	Ultra160 (16-bit)	133mm (5.25in) HH	0034B0X
-	59P6736	-	160/320GB SDLT SCSI Tape Drive Option	-	Ultra2 (16-bit)	133mm (5.25in) FH	0034B0X
-	59P6744	-	200/400GB LTO Full-High Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	-
-	25R0005	-	Half High LTO Gen 2 Tape Drive	-	Ultra160 SCSI	133mm (5.25in) HH	-
-	25R0012	-	400/800GB LTO Generation 3 SCSI Tape Drive	-	Ultra160	133mm (5.25in) FH	-
Tape Autoloaders							
-	36232LX	-	200/400GB 2U LTO Generation 2 Tape Autoloader 3623 Model 2LX	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	1.28TB/2.56TB 36232SX SDLT320 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
External Tape Libraries							
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-
Associated Options							
-	00N7956	-	68-pin External Multimode LVD/SE SCSI Terminator	-	LVD/SE (16-bit)	External	-
-	-	-	-	-	-	-	-

Note: The integrated SCSI controller is available on SATA models for tape support only (internal or external).

Note: Additional tape drive and tape library attributes, requirements and options can be found in the Tape Drive Attributes and Tape Library Attributes appendices, respectively.

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Notes:
1. Installation may require removing a standard device.

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Chapter 8. xSeries 236

Table 17. xSeries 236 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4, 5]	Form Factor[6]	Power Supply Quantity (Std/Max)[7]	Hot-swap (Power, Slots, HDD, Fans)[8]	System Management Processor	Integrated Ethernet[9]	Storage Controller[10]	Internal HDD Interface	Internal HDD Storage (Std/Max)[11]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8841-15Y	-	3.0/800-2MB L2	1/2	1GB/16GB	Tower	1/2	PSHF	Y	Dual 1GB	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/8	6/6
8841-16Y	-	3.0/800-2MB L2	1/2	1GB/16GB	Tower	1/2	PSHF	Y	Dual 1G	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/8	6/6
8841-25Y	-	3.2/800-2MB L2	1/2	1GB/16GB	Tower	1/2	PSHF	Y	Dual 1GB	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/8	6/6
8841-35Y	-	3.4/800-2MB L2	1/2	1GB/16GB	Tower	1/2	PSHF	Y	Dual 1GB	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/8	6/6
8841-45Y	-	3.6/800-2MB L2	1/2	1GB/16GB	Tower	1/2	PSHF	Y	Dual 1GB	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/8	6/6
8841-E2Y[12]	Apr 28	3.2/800-2MB L2	2/2	2GB/16GB	Tower	1/2	PSHF	Y	Dual 1Gb	Serve RAID-7k	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/5	6/6
8841-05Y	-	2.8/800 - 2MB L2	1/2	1GB/16GB	Tower	1/2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/8	6/6
8841-0RY	-	2.8/800 - 2MB L2	1/2	1GB/16GB	Tower	1/2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10/8	6/6

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Table 17. xSeries 236 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4, 5]	Form Factor[6]	Power Supply Quantity (Std/Max)[7]	Hot-swap (Power, Slots, HDD, Fans)[8]	System Management Processor	Integrated Ethernet[9]	Storage Controller[10]	Internal HDD Interface	Internal HDD Storage (Std/Max)[11]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8841-1RY	-	3.0/800 - 2MB L2	1 / 2	1GB/ 16GB	Tower	1 / 2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10 / 8	6 / 6
8841-1SY	-	3.0/800 - 2MB L2	1 / 2	1GB/ 16GB	Tower	1 / 2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10 / 8	6 / 6
8841-2RY	-	3.2/800 - 2MB L2	1 / 2	1GB/ 16GB	Tower	1 / 2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10 / 8	6 / 6
8841-3RY	-	3.4/800 - 2MB L2	1 / 2	1GB/ 16GB	Tower	1 / 2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10 / 8	6 / 6
8841-4RY	-	3.6/800 - 2MB L2	1 / 2	1GB/ 16GB	Tower	1 / 2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10 / 8	6 / 6
8841-5RY	-	3.8/800 - 2MB L2	1 / 2	1GB/ 16GB	Tower	1 / 2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10 / 8	6 / 6
8841-55Y	-	3.8/800 - 2MB L2	1 / 2	1GB/ 16GB	Tower	1 / 2	PSHF	Y	Dual 1Gb	Dual U320	Hot-swap	0GB / 1.3TB	CD-ROM (48x-24x)	10 / 8	6 / 6
Note: xSeries 236 also provides three USB ports (one front, two rear), two 9-pin serial ports, one systems management RS-485 port, one systems management Ethernet port, keyboard port, mouse port, video port and an integrated ATI Radeon 7000M graphics controller with 16 MB of video memory. A keyboard and mouse is also provided.															

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8841-01Y is 8841-01U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. Not available from IBM after this date. Business Partner Inventory may be available.

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3. Intel Xeon processor with Extended Memory 64 Technology (EM64T), L2 cache and an 800MHz (quad-pumped) Front Side Bus (FSB).
4. High-speed, two-way interleaved PC2-3200 RDIMMs. Maximum capacity requires replacing the standard DIMMs with 2GB DIMMs.
5. Memory-mirroring, hot-spare memory and Chipkill functions are supported. Chipkill is available on DIMMs 512MB and greater.
6. A 5U tower-to-rack conversion kit is available.
7. See 'Power and Accessories' section for more information on the power supplies.
8. x236 provides one Active-PCI slot.
9. Dual Broadcom 5721 Gigabit Ethernet controllers.
10. The integrated dual-channel, Ultra320 SCSI controller supports integrated RAID-0, 1 and 10.
11. All models support up to 2.7TB with an optional 3-pack HDD cage upgrade.
12. Model E2Y ships standard with a ServeRAID-7k Controller (256MB) connected to three 73.4GB SCSI HDDs.

xSeries 236 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
40K1890	40K2503	1354	2.8GHz 800MHz 2MB L2 Cache Xeon Processor	0RY, 05Y
40K1891	40K2504	1355	3.0GHz 800MHz 2MB L2 Cache Xeon Processor	1RY, 1SY
40K1892	40K2505	1356	3.2GHz/800MHz/2MB L2 Cache Xeon Processor	2RY, EEY
40K1893	40K2506	1357	3.4GHz/800MHz/2MB L2 Cache Xeon Processor	3RY, EFY
40K1894	40K2507	1358	3.6GHz/800MHz/2MB L2 Cache Xeon Processor	4RY
40K1895	40K2508	1359	3.8GHz/800MHz/2MB L2 Cache Xeon Processor	5RY
Note: x236 processor options support Intel's Extended Memory 64 Technology (EM64T)				

Notes:
1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

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xSeries 236 memory options

SBB Number	Option Number	Feature Code	Description
Memory DIMMs			
90P0870	-	0501	256MB DDR-II SDRAM DIMM (non chip-kill)
-	73P3523	-	512MB (2x256MB) PC2-3200 ECC DDR2 RDIMM Kit
90P1218	-	0502	512MB DDR-II SDRAM DIMM (non chip-kill)
-	39M5818	-	1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit
-	39M5821	-	1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit[2]
73P2874	-	0504	1GB PC3200 ECC DDR2 SDRAM RDIMM
-	39M5809	-	2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit[2]
73P4794	-	0505	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill)
-	39M5815	-	4GB (2x2GB) PC2-3200 Single Rank ECC DDR2 RDIMM Kit
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5810	-	0553	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5813	-	0593	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill)
39M5816	-	0541	512MB DDR-II SDRAM DIMM (non chip-kill)
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
Note: 16GB of memory is supported via eight DIMM slots. Due to two-way interleaving, installation of memory DIMMs in matched pairs is required beginning with DIMM slots one and two, then three and four, then five and six, then DIMM slots seven and eight. Memory-mirroring requires all installed DIMMs to match and effectively reduces available memory by half. Hot-spare memory requires all installed DIMMs to match except for the last pair which must be of equal size or greater than other installed pairs.			

Notes:
1. Quantity two of each SBB PN must be ordered to equal its corresponding option.
2. Supports Chipkill. Mixing Chipkill DIMMs with nonChipkill DIMMs will disable all Chipkill function.

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Table 18. Standard Memory Configuration

Model	Std. DIMM Configuration
0EY, 1xx, 2xx, 3xx, 4xx, 05Y, 55Y	2 x 512MB PC2-3200 ECC DDR2 RDIMM
E1Y, E2Y	2 x 1GB PC2-3200 ECC DDR2 RDIMM

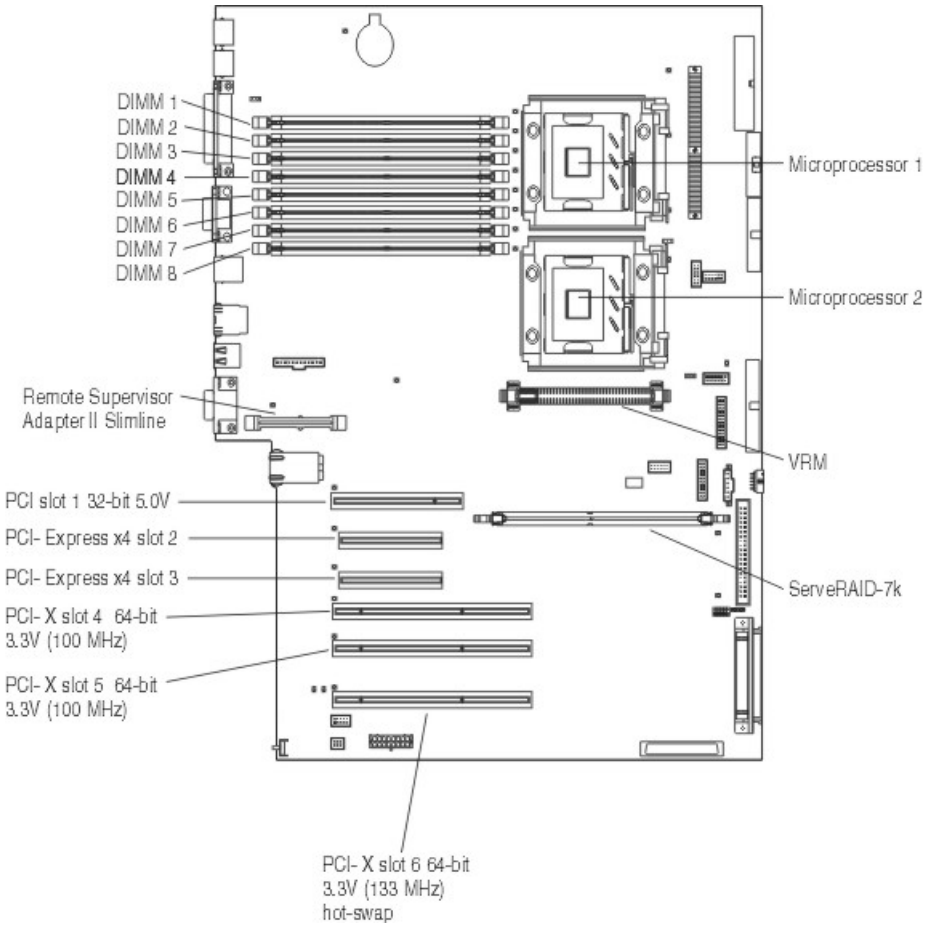

Figure 20. xSeries 236 system board

xSeries 236 internal cabling

xSeries 236 models are cabled internally with a single, 1-drop LVD SCSI cable, connecting one channel of the integrated, dual channel Ultra320 SCSI controller to the hot-swap backplane.

The second SCSI channel can be used to connect to the optional Ultra320 3-Pack HDD kit, an optional SCSI tape or can be used for external attachment via the optional Ultra320 SCSI External Interface Kit enabling an external 0.8mm VHDCI SCSI connector.

All models provide a single ATA-100 IDE connector supporting two IDE devices, one device being the standard optical cabled via a 2-drop IDE cable.

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xSeries 236 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty[2]
Hot-swap Ultra320 HDDs[3]						
-	32P0727	-	73.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
-	32P0728	-	146.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
		Hot-swap Ultra320 HDDs				
90P1386	40K1026	5232	36GB 15K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
90P1387	40K1027	5233	73GB 15K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
90P1329	40K1023	5202	73.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
90P1388	40K1028	5234	146GB 15K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
90P1330	40K1024	5203	146.8GB 10K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
90P1331	40K1025	5231	300GB 10K rpm Ultra320 SCSI Hot-swap HDD	SSL	5 ... 10	9
		Associated Options				
33P3127	33P2751	4221	Ultra320 3-Pack HDD Kit[4]	-	1 + 2[3]	1
		Optical Devices[5]				
26K8793	32R2906	4104	Multiburner Drive	HH	1 .. 3	2
02R3278	22P6950	4102	DVD-ROM Drive	HH	1 .. 3	2
26K8792	32R2905	4103	48X/32X/48X/16X Max CD-RW/DVD-ROM Combo Drive	HH	1.. 3	2
			External Storage Expansion Units[6]	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	171010U	-	FAStT EXP100 Storage Expansion Unit	Rack (3U)		
-	17401RU	-	FAStT EXP700 Storage Expansion Unit	Rack (3U)		
-	1724100	-	FAStT100 Storage Server	Rack (3U)		
-	172260U	-	FAStT600 Storage Server	Rack (3U)		
-	17226LU	-	FAStT600 Entry Storage Server	Rack (3U)		

Notes:
1. Bays 1 and 2 can be converted to support three additional HDDs for a total of nine HDDs.
2. Maximum quantity of supported HDDs requires installation of the optical Ultra320 3-Pack HDD kit. Six HDDs are supported without this kit.
3. These HDDs are offered for machine type 8841-E2Y.
4. The Ultra320 3-Pack HDD Kit converts bays 1 and 2 into three additional HDD bays.
5. An optical drive ships standard in bay 3.
6. An optical SCSI, RAID or Fibre controller is required in order to attach to the system.

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Bay	Form Factor	Height	Front Access	Usage
1[1]	133mm (5.25in)	HH	Yes	Optical/Tape/HDD[2]
2[1]	133mm (5.25in)	HH	Yes	Optical/Tape/HDD[2]
3	133mm (5.25in)	HH	Yes	Std. Optical
4	89mm (3.5in)	SL	Yes	Std. FDD
5	89mm (3.5in)	SSL	Yes	HDD
6	89mm (3.5in)	SSL	Yes	HDD
7	89mm (3.5in)	SSL	Yes	HDD
8	89mm (3.5in)	SSL	Yes	HDD
9	89mm (3.5in)	SSL	Yes	HDD
10	89mm (3.5in)	SSL	Yes	HDD

Notes:
1. Bays 1 and 2 can be combined to support one full-high device.
2. The optional Ultra320 3-Pack HDD Kit converts bays 1 and 2 into three additional hot-swap HDD bays.

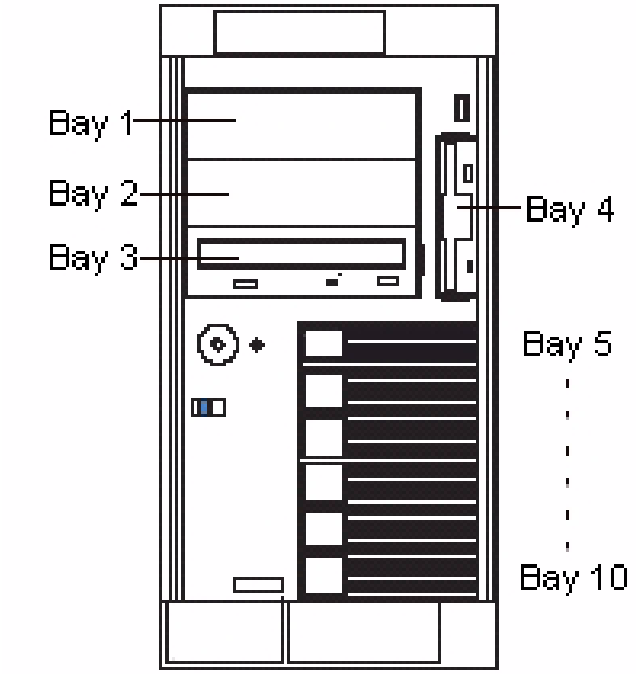

Figure 21. xSeries 236 Front View

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xSeries 236 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug
			Storage Controllers				
02R0995	39R8815	1654	ServeRAID-6M Controller (128MB Cache)[1]	Full	64-bit/ 133MHz	4, 5, 6	-
02R0996	39R8816	1653	ServeRAID-6M Controller (256MB Cache)[1]	Full	64-bit/ 133MHz	4, 5, 6	-
13N2252	39R8743	1656	Ultra320 SCSI Controller 2[3]	Half	64-bit/ 133MHz	4, 5, 6	X
71P8614	71P8594	1652	IBM Ultra320 SCSI Controller	Half	64-bit/ 133MHz	4, 5, 6	X
71P8653	39R8800	1663	ServeRAID-7k Controller[2]	-	-	-	X
			Associated Options				
02R2046	02R2068	9252	Ultra320 Internal Single-drop 24in LVD SCSI Cable[1]	-	-	-	-
			Fibre Storage Controllers and Options[4]				
-	1724100	-	FAStT100 Storage Server	-	-	-	-
	172260U		FAStT600 Storage Server	-	-	-	-
-	17226LU	-	FAStT600 Entry Storage Server	-	-	-	-
-	17421RU	-	FAStT700 Storage Server	-	-	-	-
-	174290U	-	FAStT900 Storage Server	-	-	-	-
-	2005H16	-	TotalStorage SAN Fabric Switch Model H16	-	-	-	-
-	202612E	-	TotalStorage SAN 12M-1 Switch, 12-port	-	-	-	-
-	13N1873	-	IBM 2 Gbps FC Host Bus Adapter	-	32-bit/ 133MHz	-	-
			Networking				
39Y6129	39Y6126	2944	PRO/1000 PT Dual Port Server Adapter by Intel	-	-	-	-
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	Half	64-bit/ 133MHz	4, 5, 6	X
39Y6108	39Y6105	1488	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/ 133MHz	4, 5, 6	X
33P2970	22P6901	1506	PCI Wireless LAN Adapter	Half	64-bit/ 133MHz	1	-
73P2705	73P2701	1513	PRO/1000 MT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	4, 5, 6	X
73P3505	39Y6098	1508	NetXtreme 1000 Express Ethernet Adapter	Half	PCI E 1X	2, 3	X

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug
73P3605	73P3601	1507	IBM iSCSI Server Adapter	Half	64-bit/133MHz	4, 5, 6	X
73P4105	39Y6079	1510	NetXtreme 1000 T + Ethernet Adapter	Half	64-bit/ 133MHz	4, 5, 6	X
73P4205	39Y6093	1511	NetXtreme 1000 T + Dual Port Ethernet Adapter	Half	64-bit/ 133MHz	4, 5, 6	X
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	4, 5, 6	X
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	Half	64-bit/ 133MHz	4, 5, 6	X
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	Half	64-bit/ 133MHz	4, 5, 6	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	Half	64-bit/ 133MHz	4, 5, 6	-
		System Management					
39Y9567	39Y9566	1605	Remote Supervisor Adapter II Slimline Refresh 1	Half	-	-	-
73P9342	73P9341	1608	RSA-II Daughter Card	Half	-	-	-

Notes:
1. Ultra320 Internal Single-drop 24" LVD SCSI Cable option is required when connecting internal HDDs to ServeRAID-6M adapters.
2. Installs into a dedicated slot. Does not consume a PCI slot. Quantity one allowed.
3. Support is for tape only. Tape support requires the PCI slot in which the adapter is installed be defined as the boot device slot via the BIOS setup utility.
4. See Fibre Channel Solutions Overview section for additional configuration information.
5. Option number 39Y9566 comes as standard equipment with the 8841-16Y.

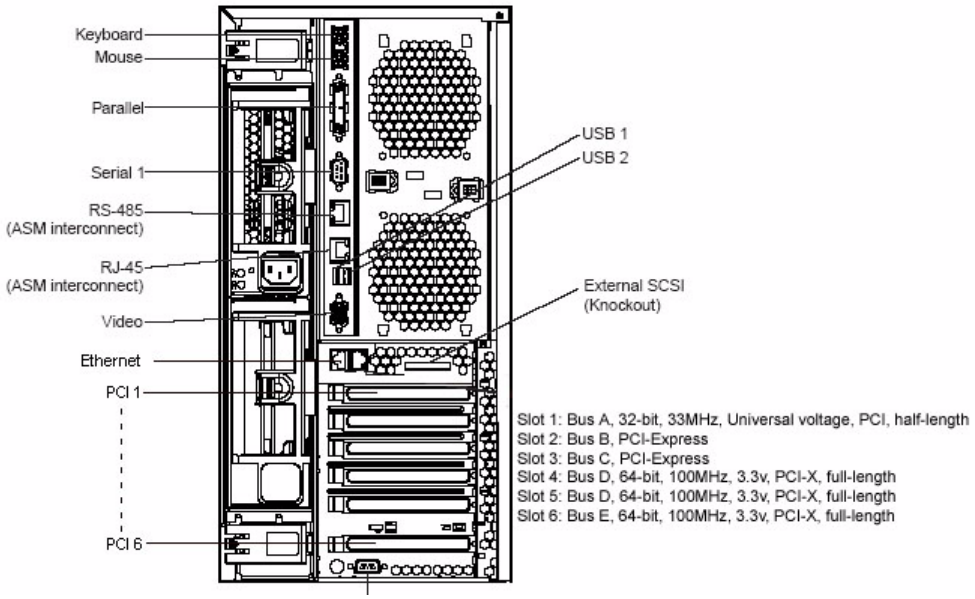

Figure 22. xSeries 236 rear view

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xSeries 236 power and accessories

Option Number	Description
Power[1]	
25K9560	670w Hot-Swap Power Supply (North America)
24R9258	670w Hot-Swap Power Supply (Worldwide)[2]
Tower Uninterruptible Power Supply (UPS)[3]	
2130R1X	UPS 750TLV
2130R2X	UPS 750THV
2130R3X	UPS 1000TLV
2130R4X	UPS 1000THV
2130R5X	UPS 1500TLV
2130R6X	UPS 1500THV
Rack Mount Uninterruptible Power Supply (UPS)[3]	
32P1020	APC 2U Smart-UPS 1400RMB
32P1022	APC 2U Smart-UPS 1400RMiB
2130R31	UPS3000XHV[4]
32P1692	UPS Extend Run Battery Pack[4]
21303RX	UPS 7500XHV[5]
21304RX	UPS 10000XHV[5]
39Y8857	UPS Extend Run Battery Pack
Power Distribution Units	
39Y8905	DPI NEMA Rack PDU
39M2816	IBM DPI C13 PDU+C13 without line cord
39Y8948	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord

Notes:
1. xSeries 236 ships with a single 670w hot-swap capable power supply and line cord. A second hot-swap power supply is optional for redundancy.
2. Does not ship with a line cord.
3. For runtimes and UPS attributes see Appendix C: UPS Runtime Estimate.
4. Height is 2U. See Rack Cabinets and Options section for supported IBM racks.
5. Height is 6U. See Rack Cabinets and Options section for supported IBM racks.
6. Height is 3U. Available for UPS 7500XHV and UPS 10000XHV. Maximum of four per UPS.

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SBB Number	Option Number	Feature Code	Description
			Racks
-	93061RX	-	NetBAY11 Standard Rack Cabinet
-	93072RX	-	IBM 25U Standard Rack
-	93074RX	-	IBM 42U Standard Rack
-	93074XX	-	IBM 42U Standard Rack Extension
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet
			Rack Tower Conversion Kits
0004806	41Y7750	4806	5U Extended Depth Tower-to-Rack Conversion Kit[1]
			Rack Console Connectivity[2]
-	17351GX	-	NetBay Local Console Manager
-	17352GX	-	NetBay Remote Console Manager
39Y7958	39M2896	3752	250mm KVM Conversion Option
39Y7959	39M2897	3754	1.5m KVM Conversion Option
-	17351LX	-	NetBay 1x4 Console Switch
-	17352LX	-	NetBay 2x8 Console Switch
			Monitors
-	17231UX	-	1U Flat Panel Monitor Console Kit (with US Space Travel keyboard)
-	17231RX	-	1U Flat Panel Monitor Console Kit (without keyboard)
-	17232UX	-	2U Flat Panel Monitor Console Kit (with PS/2 US keyboard)[3]
-	17233RX	-	2U Flat Panel Monitor Console Kit (without keyboard)[3]
-	90P0721	-	L170p ThinkVision 17in LCD Flat Panel Monitor (432mm, 17in viewable image), business black
25R4182	39Y9924	7600	IBM C117 17" CRT Monitor
25R4184	494215U	7602	IBM T115 15" TFT Monitor
25R4187	39Y9918	7605	IBM T117 17" TFT Monitor
			Keyboard and Mouse
02R3206	25R6968	8800	IBM Netvista Full-size Stealth Black PS2 Keyboard
-	90P0777	-	IBM Productivity Full-size Stealth Black USB Keyboard US English
40K9491	40K9200	8912	IBM USB Optical Wheel Mouse
02R3421	90P0740	8901	IBM Sleek 2-Button Mouse (PS/2; Mechanical Wheel)
			Other Accessories
Note: Refer to the Rack Cabinets and Options section for information concerning IBM racks and rack-supported devices.			

Notes:
1. Rack kit is 24in deep.

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2. USB accessories are not compatible with the NetBay console switches. They attach to a single USB-capable server.
3. Includes a 15in flat panel monitor.
4. Installation within a rack requires optional keyboard tray (P/N 28L4707). This keyboard cannot share a keyboard tray with a flat panel display.

xSeries 236 tape options

SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported[1]	Storage Interface	Form Factor	Ext Tape Encl
71P9165	59P6744	5358	IBM 200/400GB LTO FH Tape Drive	1, 2	-	-	-
71P9176	39M5656	5355	36/72GB DDS Generation 5 Tape Drive	1, 2	-	-	-
42C3932	39M5657	5365	IBM LTO3 Tape Drive	1, 2	SCSI	84.76mm (3.36in) FH	-
24P7303	59P6736	5361	IBM 160/320 GB SDLT Internal SCSI Tape Drive	1, 2	SCSI	84.76mm (3.36in) FH	-
0005386	39M5658	5386	IBM Half High LTO Gen 2 Tape Drive	1, 2	SCSI	133mm (5.25in) HH	-
Tape Autoloaders							
-	36232SX	-	1.28TB/2.56TB 36232SX SDLT320 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
-	36232LX	-	200/400GB 2U LTO Generation 2 Tape Autoloader 3623 Model 2LX	-	Ultra160 (16-bit)	2U Rack	-
-	87691VX	-	1U VXA-320 Tape Autoloader	-	-	-	-
External Tape Enclosures							
-	45591UX	-	NetBay 1U xSeries Tape Enclosure	-	Ultra160 (16-bit)	1U Rack	-
-	45594UX	-	4U Rackmount SCSI Tape Enclosure	-	Ultra2 (16-bit)	4U Rack	-
-	4559HHX	-	Half-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (2.52in tall)	-
-	4559FHX	-	Full-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (4.41in tall)	-
Note: Additional tape drive and tape library attributes, requirements and options can be found in the Tape Drive Attributes and Tape Library Attributes appendices, respectively.							

Notes:
1. This option contains: option part number of single drive - 39M5656 and option part number 5 Pack DDS Gen 5 (36/72 GB) Tape Media - 71P9158.

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Chapter 9. xSeries 306m

Table 19. xSeries 306m At-A-Glance

Part Number[1,2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6,7]	Internal HDD Interface[8]	Internal HDD Storage (Std/Max)[9]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8849-10Y	-	Intel Pentium 4 Processor 531 with EM64T (3.0 GHz 1M L2)	1/1	512MB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	3/2	2/2
8849-1AY	-	Intel Pentium 4 Processor 531 with EM64T (3.0 GHz 1M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8849-E1Y	Apr 28	3.0/800-1MB L2	1/1	1GB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8849-20Y[10]	-	Intel Pentium D Processor 830 (3.0 GHz 2M L2) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8849-30Y	-	Intel Pentium 4 Processor 640, with EM64T (3.2 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple Swap	0GB/500GB	CDROM 24x-10x	3/2	2/2
8849-3AY	-	Intel Pentium 4 Processor 640, with EM64T (3.2 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8849-40Y	-	Intel Pentium 4 Processor 650, with EM64T (3.4 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8849-E5Y	Apr 28	3.4/800-2MB L2	1/1	1GB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8849-50Y	-	Intel Pentium 4 Processor 660, with EM64T (3.6 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8849-B2Y	-	Intel Pentium 4 HT Processor 631 (3.0GHz/2MB L2) Dual Core	1/1	512MB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2

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Table 19. xSeries 306m At-A-Glance

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6, 7]	Internal HDD Interface[8]	Internal HDD Storage (Std/Max)[9]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8849-G2Y	-	Intel Pentium D Processor 920 (2.8GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2
8849-G4Y	-	Intel Pentium D Processor 920 (2.8GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8849-H2Y	-	Intel Pentium D Processor 930 (3.0GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2
8849-H4Y	-	Intel Pentium D Processor 930 (3.0GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8849-J2Y	-	Intel Pentium D Processor 940 (3.2GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8849-K2Y	-	Intel Pentium D Processor 950 (3.4GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2
8849-K4Y	-	Intel Pentium D Processor 950 (3.4GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8849-94Y	-	Intel Pentium D Processor 960, with EM64T (3.6GHz/800MHz-4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8849-EBY	Apr 28	Intel Pentium 4 HT Processor 631 (3.0GHz/2MB L2)	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2
8849-EHY	Apr 28	Intel Pentium D Processor 930 (3.0GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2

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Table 19. xSeries 306m At-A-Glance

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6, 7]	Internal HDD Interface[8]	Internal HDD Storage (Std/Max)[9]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8491-10Y	-	Intel Pentium 4 Processor 531 with EM64T (3.0 GHz 1M L2)	1/1	512MB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	3/2	2/2
8491-1AY	-	Intel Pentium 4 Processor 531 with EM64T (3.0 GHz 1M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8491-20Y[10]	-	Intel Pentium D Processor 830 (3.0 GHz 2M L2) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8491-30Y	-	Intel Pentium 4 Processor 640, with EM64T (3.2 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	3/2	2/2
8491-3AY	-	Intel Pentium 4 Processor 640, with EM64T (3.2 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8491-40Y	-	Intel Pentium 4 Processor 650, with EM64T (3.4 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8491-50Y	-	Intel Pentium 4 Processor 660, with EM64T (3.6 GHz 2M L2)	1/1	512MB/8GB	Rack (1U)	1/1	H	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	3/2	2/2
8491-B2Y	-	Intel Pentium 4 HT Processor 631 (3.0GHz/2MB L2) Dual Core	1/1	512MB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2
8491-G2Y	-	Intel Pentium D Processor 920 (2.8GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2
8491-G4Y	-	Intel Pentium D Processor 920 (2.8GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8491-H2Y	-	Intel Pentium D Processor 930 (3.0GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2

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Table 19. xSeries 306m At-A-Glance

Part Number[1, 2]	Withdrawal Date[3]	CPU/FSB Speed (GHz/MHz) - Cache	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[6, 7]	Internal HDD Interface[8]	Internal HDD Storage (Std/Max)[9]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8491-H4Y	-	Intel Pentium D Processor 930 (3.0GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8491-J2Y	-	Intel Pentium D Processor 940 (3.2GHz/4MB) Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8491-K2Y	-	3.4/800-4MB L2 Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2
8491-K4Y	-	3.4/800-4MB L2 Dual Core	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SAS/SATA	Hot-Swap	0GB/600GB	CDROM 24x-10x	2/2	2/2
8491-94Y	-	3.6/800-4MB L2	1/1	1GB/8GB	Rack (1U)	1/1	-	N	Dual 1Gb	SATA	Simple-Swap	0GB/500GB	CDROM 24x-10x	2/2	2/2

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8849-10Y is 8849-10U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.
2. The 8849 machine type carries a one year limited parts and labor warranty. The 8491 machine type carries a three year limited parts and labor warranty.
3. Not available from IBM after this date. Business Partner Inventory may be available.
4. A maximum of 8GB of memory is supported via 4 DIMM slots.
5. See "Power and Accessories" section for more information on the power supplies.
6. Simple Swap SATA models support Hostraid 0, 1 via Adaptec Hostraid ROM code and enabled through the BIOS setup menu. ServeRaid 7t SATA controller must be installed for additional RAID capabilities.
7. SAS/SATA models provide RAID 0,1 support on the integrated controller for SAS or SATA drives. The ServeRAID 8i SAS RAID controller may be installed for additional RAID capabilities.
8. All of the SAS/SATA (Hot Swap) models use the same backplane for drives and use either SATA or SAS drives.Maximum capacity for Hot-Swap SAS/SATA models is based on two 300GB hot-swap SAS HDDs. Maximum capacity for Simple-swap SATA models is based on two 250GB SATA HDDs.
9. Two slim high DASD bays for simple swap SATA models or two slim high Hot-swap DASD bays for Hot Swap SAS/SATA models.
10. This machine type includes Pentium D dual-core processors.

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xSeries 306m memory options

SBB Number	Option Number	Feature Code	Memory Options
30R5154	30R5148	0530	512MB (1 x 512MB) PC2-4200 ECC DDR2 SDRAM DIMM
30R5155	-	0531	1GB DDR2 533 DIMM Memory
-	30R5149	-	2GB (2x1GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM
30R5156	-	0532	2GB DDR2 533 DIMM Memory
-	30R5150	-	4GB (2x2GB) PC2-4200 CL3 ECC DDR2 SDRAM DIMM

Table 20. Standard Memory ConfigurationTable 21.

Model	Std. DIMM Configuration[1, 2]
10Y,1AY, 30Y, 3AY, 40Y, 50Y	1 x 512MB DDR2 533 DIMM Memory
E1Y, 20Y, E5Y	2 x 512MB DDR2 533 DIMM Memory

Notes:

1. The server comes with one 512 MB DIMM installed in DIMM connector 1. If one DIMM is installed when you install an additional DIMM, it must be installed in DIMM connector 3 and it must be the same size, speed, type, and technology as the DIMM that is installed in DIMM connector 1. You can mix compatible DIMMs from various manufacturers.
2. If you install a second pair of DIMMs in DIMM connectors 2 and 4, they do not have to be the same size, speed, type, and technology as the DIMMs that are installed in DIMM connectors 1 and 3. However, the size, speed, type, and technology of the DIMMs that you install in DIMM connectors 2 and 4 must match each other.

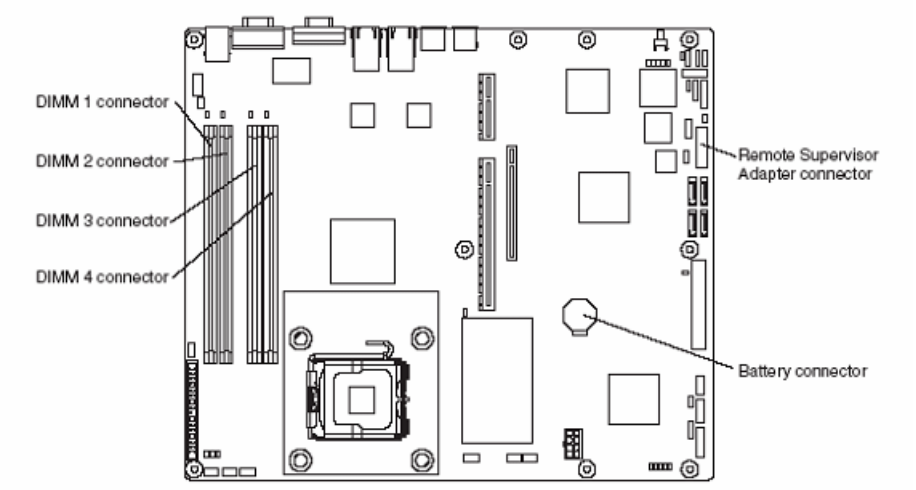

Figure 23. x306m DIMMs

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xSeries 306m hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
		Hot-Swap SAS HDDs[1]				
40K1071	40K1039	5163	73GB 10K 3.5" SAS Hot-Swap HDD	-	-	-
40K1072	40K1040	5164	146GB 10K 3.5" SAS Hot-Swap HDD	SL	2, 3	2
40K1073	40K1041	5156	300GB 10K 3.5" SAS Hot-Swap HDD	SL	2, 3	2
40K1074	40K1042	5160	36GB 15K 3.5" SAS Hot-Swap HDD	SL	2, 3	2
40K1075	40K1043	5161	73GB 15K 3.5" SAS Hot-Swap HDD	SL	2, 3	2
40K1076	40K1044	5162	146GB 15K 3.5" SAS Hot-Swap HDD	SL	2, 3	2
		Simple-swap SATA HDDs[1]				
39M4505	39M4504	5291	160GB Simple-Swap SATA HDD	SL	2, 3	2
39M4515	39M4514	5288	500GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	2, 3	2
		Hot-swap SATA HDDs [1]				
39M4523	39M4522	5150	160GB 7200 RPM Hot-Swap SATA HDD	SL	2, 3	2
39M4527	39M4526	5151	250GB 7200 RPM Hot-Swap SATA HDD	SL	2, 3	2
39M4531	39M4530	5196	500GB 7200 RPM 3.5" Hot-Swap SATA HDD	-	-	-
		Optical Devices				
32R2784	39R7508	4144	24x/24x CD-RW/DVD Combo V Ultrabay Enhanced	SFF	1	1
			External Storage Expansion Units	**Form Factor**		
-	-	-	-	-		

Notes:

1. Mixing of different HDD technologies is not supported.

Bay	Form Factor	Height	Front Access	Usage
1	133mm (5.25in)	Slim	yes	Std. Optical
2	89mm (3.5in)	SL	yes	HDD
3	89mm (3.5in)	SL	yes	HDD
Note: Standard HDD on nonopen-bay module is installed in bay 2.				

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xSeries 306m I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported
			Storage Controllers			
39R8809	39R8805	1683	ServeRAID 7t SATA Controller[1]	Half	64-bit/ 66MHz	1, 2
39R8752	39R8743	1680	Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1, 2
			External Disk Systems and Options			
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-
-	17012RD	-	TotalStorage DS300 - Dual Controller	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-
-	17241xx	-	TotalStorage DS4100 Midrange Disk System (all models)	-	-	-
-	24P82xx	-	TotalStorage DS4300 Model 60U with Turbo	-	-	-
-	17421xx	-	TotalStorage DS4400 Midrange Disk System (all models)	-	-	-
-	17429xx	-	TotalStorage DS4500 Midrange Disk System (all models)	-	-	-
-	18158xx	-	TotalStorage DS4800 Midrange Disk System (all models)	-	-	-
-	2005H08	-	TotalStorage Fibre Channel Switch H08	-	-	-
-	2005H16	-	TotalStorage Fibre Channel Switch H16	-	-	-
-	2026224	-	TotalStorage SAN 24M-1 Fabric Switch (24-port)	-	-	-
-	2031224	-	McData Spherion 4500 Fabric Switch (24-port) model	-	-	-
-	17226xx	-	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-
-	2109F32	-	SAN Switch Model F32 (32-port)	-	-	-
			Networking			
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	Half	32-bit/ 33MHz	1
73P2705	73P2701	1513	PRO/1000 MT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	-
73P4105	39Y6079	1510	NetXtreme 1000 T + Ethernet Adapter 2	Half	64-bit/ 133MHz	1
73P4205	39Y6093	1511	NetXtreme 1000 T + Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	1
-	73P5101	-	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported
-	-	-	-	-	-	-
		System Management				
13N0761	59P2984	1609	Remote Supervisor Adapter II	Half	-	-
Other I/O						
-	39M6362	-	PCI-E Riser Card	-	-	-

Notes:
1. The optional ServeRAID -7t SATA controller can be installed only in PCI-X slot 2. The low-profile bracket that comes with the controller is required to install the controller.

Slot/Devise	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI	Slot Length
PCI-X Slots on Riser Card	-	-	-	-	-	-	-
1	PCI-X	-	3.3	66/100	-	-	Full
2	PCI-X	-	3.3	66/100	-	-	Half
PCI-X and PCI Express slots on the riser-card assembly	-	-	-	-	-	-	-
1	PCI-X	-	3.3	66/100	-	-	Full
2	PCI Express x8	-	-	-	-	-	-
6	-	-	-	-	-	-	-

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xSeries 306m power and accessories

Option Number	Power
Power Distribution Units	
26K4241	DPI 32A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
26K4242	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
26K4243	DPI 63A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
26K4245	DPI 32A Three Phase C13 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
26K4246	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
26K4256	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
26K4257	DPI 63A Single Phase C19 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
39Y8923	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) line cord
26K4259	DPI 32A Three Phase C19 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
39Y8951	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
39Y8938	30amp/125V Front-end PDU with NEMA L5-30P connector
39Y8934	32amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
39Y8935	63amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
39Y8905	DPI NEMA Rack PDU
39Y8939	30amp/250V Front-end PDU with NEMA L6-30P connector
39Y8940	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
39Y8999	32A/230V 3P w/IEC309 3P+N+Gnd Conn
39Y9000	60A/208V 3P w/IEC309 3P+Gnd Conn
73P5855	60A/208V 1P w/IEC309 2P+Gnd Conn
73P5856	63A/320V 1P w/IEC309 P+N+Gnd Conn
Uninterruptible Power Supply (UPS)	
21303RX	IBM UPS 7500XHV
21304RX	IBM UPS 10000XHV
2130R31	IBM UPS3000XHV 200-240V (US HV cord)
39Y8857	IBM UPS 3U Online Battery Pack
32P1020	APC 2U Smart-UPS 1400RMB
32P1022	APC 2U Smart-UPS 1400RMiB
32P1692	IBM UPS Extend Run Battery Pack

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SBB Number	Option Number	Feature Code	Description
		Rack Console Connectivity	
-	17351LX	-	1x4 port Console Switch
-	1735L04	-	NetBAY Local Console Manager
-	17352LX	-	2x8 port Console Switch
-	1735R16	-	NetBAY Remote Console Manager
		Monitors	
-	90P0721	-	L170p 17" TFT Monitor
-	17231UX	-	1U 17" Flat Panel Monitor Console Kit w/ US keyboard
-	17233RX	-	IBM 2U Flat Panel Monitor Console Kit without keyboard
-	17232UX	-	IBM 2U Flat Panel Monitor Console Kit with US keyboard
-	17231RX	-	1U 17in Flat Panel Monitor Console Kit w/Optical Drive Bay
-	49387XX	-	C117 17in (15.9 inch VIS) FST CRT
-	494215X	-	T115 15in TFT LCD
-	494317X	-	T117 17in TFT LCD
		Keyboard and Mouse	
42C1473	40K5372	8693	IBM USB UltraNav Keyboard - USB
-	90P0777	-	IBM Enhanced Performance Keyboard - USB
40K9491	40K9200	8912	IBM Optical Wheel Mouse - USB
		Racks	
-	93074XX	-	IBM 42U Standard Rack Extension
-	14104RX	-	IBM Linux Cluster Rack
-	93074RX	-	IBM 42U Standard Rack
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
-	93072RX	-	IBM 25U Standard Rack
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93061RX	-	NetBAY11 Standard Rack Cabinet

Notes:

1. Converts KVM signals for CAT5 cabling for servers with PS/2 KVM ports.

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xSeries 306m tape options

SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosures
71P9176	39M5656	5355	36/72GB DDS Generation 5 Tape Drive	-	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	45591UX 45594UX
0005386	39M5658	5386	Half High LTO Gen 2 Tape Drive	-	-	-	45591UX 45594UX
-	39M5641	-	VXA-2 Tape Drive and 5-Pack Media Express Option[1]	-	-	-	-
-	39M5642	-	DLT VS160 Tape Drive and 5-Pack Media Express Option	-	-	-	-
-	39M5643	-	DDS/5 Tape Drive and 5-Pack Media Express Option	-	-	-	-
			Tape Autoloaders				
-	36232LX	-	IBM LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	IBM SDLT 320 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
			External Tape Enclosures				
-	45591UX	-	IBM 1U xSeries Tape Enclosure Rack or Tower	-	Ultra160 (16-bit)	1U Rack	-
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-	Ultra160 (16-bit)	1U Rack	-
			External Tape Libraries				
-	3582-L23/ F23	-	Ultrium 2 Tape Library	-	-	-	-
			Associated Options				
-	-	-	-	-	-	-	-

Notes:

1. This option contains: option part number of single drive - 39M5656 and option part number 5 Pack DDS Gen 5 (36/72 GB) Tape Media - 71P9158.

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Chapter 10. xSeries 336

The xSeries 336 is housed in a 19in rack-mountable drawer and also provides three USB ports (one front, two rear), one 9-pin serial port, keyboard port, mouse port, video port and an integrated ATI Radeon 7000M graphics controller with 16 MB of video memory. A keyboard, mouse and diskette drive is not provided.

Table 22. xSeries 336 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Processor Quantity (Std/Max)	Memory (Std/Max)[3, 4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8837-15Y	3.0/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	DVD-ROM (8x)	3/2	2/2
8837-16Y	3.0/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	SATA	Simple-swap	0GB/500GB[8, 9]	DVD-ROM (8x)	3/2	2/2
8837-1VY	3.0/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	-	4/4	2/2
8837-25Y	3.2/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	DVD-ROM (8x)	3/2	2/2
8837-35Y	3.4/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	DVD-ROM (8x)	3/2	2/2
8837-36Y	3.4/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	SATA	Simple-swap	0GB/500GB[8, 9]	DVD-ROM (8x)	3/2	2/2
8837-3VY	3.4/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	-	4/4	2/2
8837-45Y	3.6/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	DVD-ROM (8x)	3/2	2/2
8837-05Y	2.8 /800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	DVD-ROM (8x)	3/2	2/2

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Table 22. xSeries 336 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Processor Quantity (Std/Max)	Memory (Std/Max)[3, 4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8837-0WY	2.8/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	-	4/4	2/2
8837-06Y	2.8/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	SATA	Simple-swap	0GB/500GB[8, 9]	DVD-ROM (8x)	3/2	2/2
8837-55Y	3.8/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	DVD-ROM (8x)	3/2	2/2
8837-5VY	3.8/800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	-	4/4	2/2
8837-56Y	3.8 /800-2MB L2	1/2	1GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	SATA	Simple-swap	0GB/500GB[8, 9]	DVD-ROM (8x)	3/2	2/2
8837-D1Y	2.8/800-4MB L2 DC	1/2	2GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	DVD-ROM (8x)	3/2	2/2
8837-DAY	2.8/800-4MB L2 DC	1/2	2GB/16GB	Rack (1U)	1/2	P, H, F	Y	Dual 1GB	U320	Hot-swap	0GB/293.6GB[8]	-	4/4	2/2

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8837-01Y is 8837-01U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.
2. Intel Xeon processor with Extended Memory 64 Technology (EM64T), L2 cache and an 800MHz (quad-pumped) Front Side Bus (FSB).
3. High-speed, two-way interleaved PC2-3200 RDIMMs. Maximum capacity requires replacing the standard DIMMs.
4. Memory-mirroring, hot-spare memory and Chipkill functions are supported. Chipkill is available on DIMMs 512MB and greater.
5. See 'Power and Accessories' section for more information on the power supplies.
6. Dual Broadcom 5721 Gigabit Ethernet controllers.
7. SCSI models provide a single-channel, Ultra320 integrated SCSI controller which supports RAID-1 and RAID-1E. SATA models provide two SATA controllers supporting one HDD each.
8. Maximum capacity requires installing two 250GB SATA HDDs.

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9. Capacities are based on installation of two 3.5-in 146 GB Ultra320 or four 2.5-in 73 GB Ultra320 HDDs (SCSI models) or two 160 GB SATA HDDs (SATA models).

xSeries 336 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
39Y6944	40K2510	0498	3.0GHz/800MHz 2MB L2 Cache, Xeon Processor	1xY, ExY
39Y6945	40K2511	0499	3.2GHz/800MHz 2MB L2 Cache	2xY
39Y6948	40K2512	1350	3.4GHz/800MHz 2MB L2 Cache, Xeon Processor	3xY, E5Y
39Y6950	40K2513	1351	3.6GHz/800MHz 2MB L2 Cache, Xeon Processor	4xY
39Y6942	40K2509	0497	2.8GHz/800MHz 2MB L2 Cache Xeon Processor	05Y, 06Y, 0WY, E4Y
39Y6952	40K2514	1352	3.8GHz/800MHz 2MB L2 Cache, Xeon Processor	5VY, 56Y
39Y7000	40K2501	1353	Dual Core Intel Xeon Process	DxY
Note: x336 processor options support Intel's Extended Memory 64 Technology (EM64T).				

Notes:
1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

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xSeries 336 memory options

SBB Number[1]	Option Number	Feature Code	Memory Options
90P0870		0501	256MB DDR-II SDRAM DIMM (non chip-kill)
	73P3523		512MB (2x256MB) PC2-3200 ECC DDR2 RDIMM Kit
90P1218		0502	512MB DDR-II SDRAM DIMM (non chip-kill)
	39M5818		1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit
73P2873		0503	512MB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	39M5821		1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit[2]
73P2874		0504	1GB PC3200 ECC DDR2 SDRAM RDIMM
	39M5809		2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit[2]
73P4794		0505	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill)
	39M5815		4GB (2x2GB) PC2-3200 Single Rank ECC DDR2 RDIMM Kit
Note: 16GB of memory is supported via eight DIMM slots. Due to two-way interleaving, installation of memory DIMMs in matched pairs is required beginning with DIMM slots one and two, then three and four, then five and six, then the DIMM slots seven and eight. Memory-mirroring requires all installed DIMMS to match and effectively reduces available memory by half. Hot-spare memory requires all installed DIMMs to match except for the last pair which must be of equal size or greater than other installed pairs.			

Notes:
1. Quantity two of each SBB PN must be ordered to equal its corresponding option.
2. Supports Chipkill. Mixing Chipkill DIMMs with nonChipkill DIMMs will disable all Chipkill function.

Table 23. Standard Memory Configuration

Model	Std. DIMM Configuration	Chipkill
1xx, 2xx, 3xx, 4xx, 5xY, 05Y, 0WY, 06Y	2 x 512MB PC2-3200 ECC DDR2 RDIMM	N
0EY, E1Y, E2Y, E3Y, E4Y, E5Y	2 x 1GB PC2-3200 ECC DDR2 RDIMM	Y

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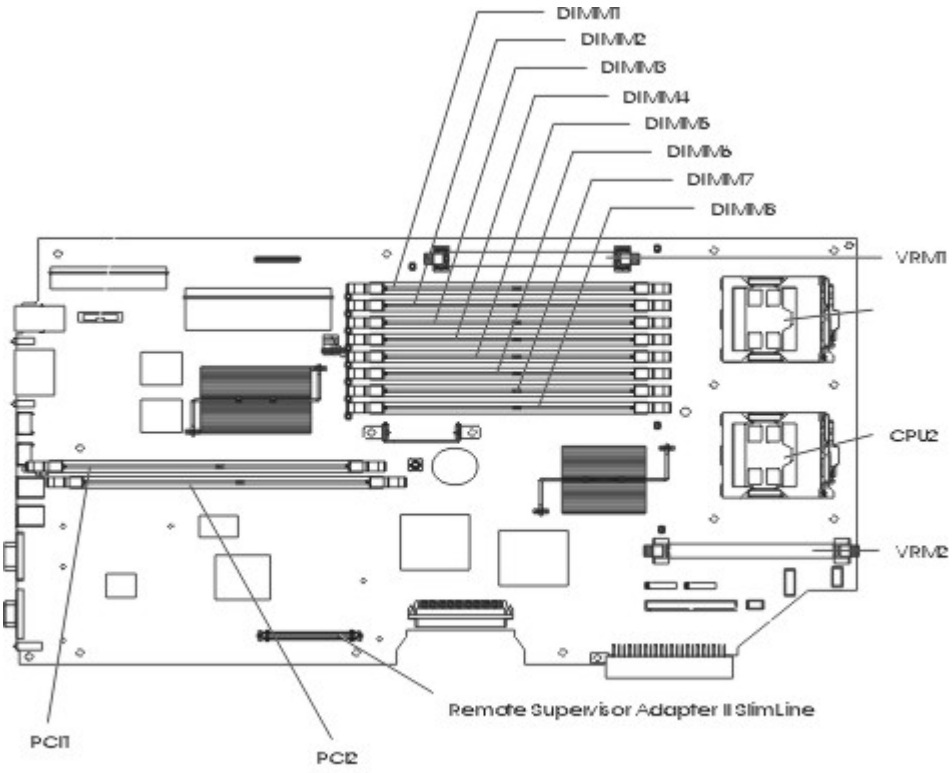

Figure 24. xSeries 336 system board

xSeries 336 internal cabling

Hot-swap SCSI models

xSeries 336 hot-swap SCSI models are cabled internally with a single, 1-drop LVD SCSI cable, connecting the integrated single-channel Ultra320 SCSI controller to the hot-swap backplane.

Simple-swap SATA

xSeries 336 simple-swap SATA models provide two point-to-point SATA cables connecting the two integrated SATA controllers to the SATA simple-swap backplane.

A single IDE device is supported on the 3.5in SCSI HDD models and the simple-swap SATA models. An IDE device is not supported on the 2.5in SCSI HDD models.

External SCSI attachment requires an optional SCSI controller be installed.

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xSeries 336 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty
Diskette Drives						
-	40K1692	-	USB Portable Diskette Drive 05K9276 IBM USB Portable Diskette Drive	SL	-	-
-	05K9276	-	IBM USB Portable Diskette Drive	-	-	-
		Simple-swap SATA HDDs[2]				
40K6865	40K6864	5154	80GB 7200 rpm Simple-swap SATA HDD	SL	1, 2	2
40K6869	40K6868	5155	160GB 7200 rpm Simple-swap SATA HDD	SL	1, 2	2
73P8015	40K6872	5243	250GB 7200 rpm Simple-swap SATA HDD	SL	1, 2	2
		Hot-swap Ultra320 HDDs[2, 4]				
-	90P1304	-	36.4 GB 10K-rpm Ultra320 SCSI Hot-Swap HDD	-	-	-
90P1335	90P1318	5204	36.4 GB 15K-rpm Ultra320 SCSI Hot-Swap HDD	-	-	-
90P1336	90P1319	5205	73.4 GB 15K-rpm Ultra320 SCSI Hot-Swap HDD	-	-	-
40K1055	40K1023	5165	73.4GB 10K rpm Ultra320 SCSI HDD	SSL	1, 2	2
40K1056	40K1024	5166	146.8GB 10K rpm Ultra320 SCSI HDD	SSL	1, 2	2
40K1057	40K1025	5167	300GB 10K rpm Ultra320 SCSI HDD	SSL	1, 2	-
40K1058	40K1026	5168	36GB 15K rpm Ultra320 SCSI HDD	SSL	1, 2	-
40K1059	40K1027	5169	73GB 15K rpm Ultra320 SCSI HDD	SSL	1, 2	-
40K1060	40K1028	5170	146GB 15K rpm Ultra320 SCSI HDD	SSL	1, 2	-
40K1067	40K1035	5171	36.4GB 10K rpm Ultra320 SCSI SFF HDD	SFF[5]	1, 2, 3, 4	4
40K1068	40K1036	5172	73.4GB 10K rpm Ultra320 SCSI SFF HDD	SFF[5]	1, 2, 3, 4	4
		Optical Devices[6]				
-	22P5297	-	USB 2.0 Portable CD-RW Drive	-	-	-
-	22P9163	-	USB2.0 Portable Multi-Burner Drive	-	-	-
-	33L5151	-	IBM USB Portable CD-ROM Drive	-	-	-
26K8788	73P3288	4101	Ultrabay Slim DVD-ROM/CD-RW Combo Drive	Ultra-Slim	3	1
-	73P3270	-	Ultrabay Slim DVD-ROM Drive	Ultra-Slim	3	1
-	73P3294	-	Ultrabay Slim Rambo 2.5 Multi-Burner Drive	Ultra-Slim	3	1

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty
			External Storage Expansion Units	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	17332RX	-	EXP400 Storage Expansion Unit (DC Power)	Rack (3U)		
-	171010U	-	FAStT EXP100 Storage Expansion Unit	Rack (3U)		
-	17401RU	-	FAStT EXP700 Storage Expansion Unit	Rack (3U)		
-	1724100	-	FAStT100 Storage Server	Rack (3U)		
-	172260U	-	FAStT600 Storage Server	Rack (3U)		
-	24P8215	-	FAStT600 Turbo Storage Server	Rack (3U)		
-	17226LU	-	FAStT600 Entry Storage Server	Rack (3U)		

Notes:
1. Installation may require removing standard devices.
2. Mixing SATA and SCSI HDDs is not supported.
3. These HDDs are offered for machine type 8837-E3Y.
4. Small Form Factor (SFF) HDDs are 2.5in wide and cannot be mixed with the 3.5in SSL HDDs.
5. See the At-A-Glance section for models that support SFF hard drives.
6. SFF SCSI HDD models do not support an optical drive. 3.5in SCSI HDD and SATA models ship standard with an 8X Max DVD-ROM drive.
7. An optional SCSI, RAID or Fibre controller is required in order to attach to the system.

SATA and 3.5in SCSI HDD Models

Bay	Form Factor	Height	Front Access	Usage
1	89mm (3.5in)	SSL	Yes	HDD
2	89mm (3.5in)	SSL	Yes	HDD
3	133mm (5.25in)	Ultra-Slim	Yes	Std. Optical

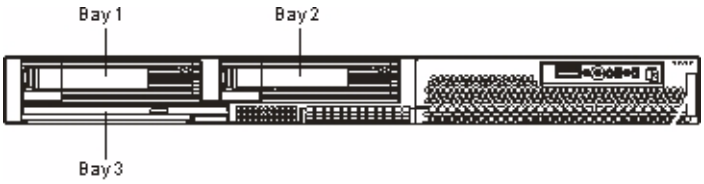

Figure 25. xSeries 336 Front View

2.5in SCSI HDD Models

Bay	Form Factor	Height	Front Access	Usage
1	63.5mm (2.5in)	SFF	Yes	HDD
2	63.5mm (2.5in)	SFF	Yes	HDD
3	63.5mm (2.5in)	SFF	Yes	HDD
4	63.5mm (2.5in)	SFF	Yes	HDD

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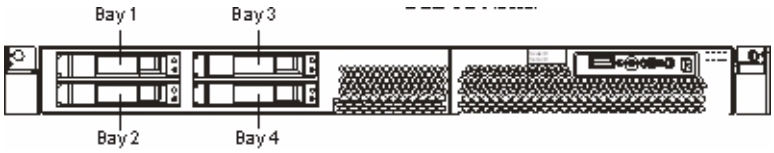

Figure 26. xSeries 336 Front View

xSeries 336 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug[1]
			Storage Controllers				
39R8797	39R8793	1682	ServeRAID-6i+ Controller	Half	64-bit/ 133MHz	1	-
-	19K1121	-	FAStT EXP200 Redundant Raid Controller	-	-	-	-
13N2252	39R8743	1656	Ultra320 SCSI Controller 2[2]	Half	64-bit/ 133MHz	1, 2[3]	-
39R8820	39R8816	1686	ServeRAID-6M Controller (256MB Cache)	Full	64-bit/ 133MHz	2	-
39R8819	39R8815	1685	ServeRAID-6M Controller (128MB Cache)	Full	64-bit/ 133MHz	2	-
71P8651	39R8805	1651	ServeRAID-7t SATA RAID Controller	Half	64-bit/ 64MHz	1, 2[3]	-
71P8614	71P8594	1652	Single Channel Ultra320 SCSI Controller	Half	64-bit/ 133MHz	1, 2[2]	-
			Fibre Storage Controllers and Options[4]				
-	1724100	-	FAStT100 Storage Server	-	-	-	-
-	172260U	-	FAStT600 Storage Server	-	-	-	-
-	24P8215	-	FAStT600 Turbo Storage Server	-	-	-	-
-	17226LU	-	FAStT600 Entry Storage Server	-	-	-	-
-	17421RU	-	FAStT700 Storage Server	-	-	-	-
-	19K1269	-	IBM FAStT700 Mini Hub	-	-	-	-
-	174290U	-	FAStT900 Storage Server	-	-	-	-
-	2005H16	-	TotalStorage SAN Fabric Switch Model H16	-	-	-	-
-	202612E	-	TotalStorage SAN 12M-1 Switch, 12-port	-	-	-	-
-	2034212	-	McData 4300 Fabric Switch (12-port)	-	-	-	-
-	2061020	-	Cisco MDS 9120 Multilayer Fabric Switch	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug[1]
-	2061040	-	Cisco MDS 9140 Multilayer Fabric Switch	-	-	-	-
			Networking				
39Y6071	39Y6066	1484	NetXtreme II 1000 Express Ethernet Adapter	-	-	-	-
-	31P6401	-	NetXtreme 1000 T Dual Port Ethernet Adapter (copper)	Half	64-bit/ 133MHz	1, 2	-
73P3505	39Y6098	1508	NetXtreme 1000 Express Ethernet Adapter	Half	PCI E 1X	2	X
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	Half	64-bit/ 133MHz	1,2	X
39Y6096	39Y6093	1489	NetXtreme 1000 T Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	1,2	X
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	-	-	-	-
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	-	-	-	-
-	30R5201	-	IBM iSCSI Server TX Adapter	Half	64-bit/ 133MHz	1,2	-
-	30R5501	-	IBM iSCSI Server SX Adapter	Half	64-bit/ 133MHz	1,2	-
			System Management				
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	Half	-	-	-
			Other I/O				
-	24R9293	-	PCI Express Adapter Riser Card	-	-	-	-

Notes:
1. xSeries 336 does not have any Active-PCI slots.
2. Support is for tape only. Tape support requires the PCI slot in which the adapter is installed be defined as the boot device slot via the BIOS setup utility.
3. For this option to fit in slot 1, remove the 3U bracket and attach the 2U bracket.
4. See Fibre Channel Solutions Overview section for additional configuration information.
5. Installs into a dedicated slot. Does not consume a PCI slot. Quantity one allowed.

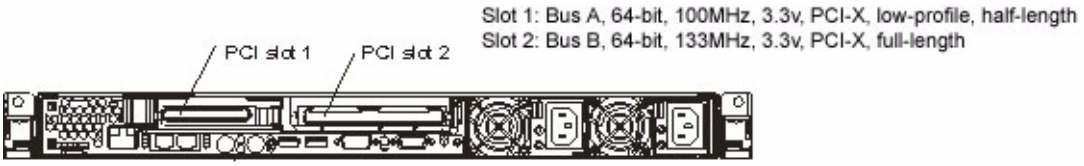
Slot 1: Bus A, 64-bit, 100MHz, 3.3v, PCI-X, low-profile, half-length
Slot 2: Bus B, 64-bit, 133MHz, 3.3v, PCI-X, full-length
PCI slot 1
PCI slot 2

Figure 27. xSeries 336 Rear View

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xSeries 336 power and accessories

Option Number	Description
Power[1]	
90P5280	585w Hot-Swap Power Supply
Power Distribution Units	
39Y8923	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) line cord
39Y8941	DPI 32A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
39Y8948	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
39Y8951	DPI Universal Rack PDU
39Y8938	30amp/125V Front-end PDU with NEMA L5-30P connector
39Y8935	32amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
39Y8905	63amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
39Y8940	30amp/250V Front-end PDU with NEMA L6-30P connector
39Y8939	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
37L6866	Cost Reduced HV Power Distribution Unit
73P5790	IBM NetBAY 60A Front-End PDU
39Y8999	32A/230V 3P w/IEC309 3P+N+Gnd Connector
39Y9000	60A/208V 3P w/IEC309 3P+Gnd Connector
73P5855	60A/208V 1P w/IEC309 2P+Gnd Connector
73P5856	63A/320V 1P w/IEC309 P+N+Gnd Connector
94G6666	Netfinity 100-120V Power Distribution Unit
37L6883	NetBAY Single Phase Front-End PDU with 120V Line Cord
37L6884	NetBAY Single Phase Front-End PDU with 208V Line Cord
37L6886	NetBAY Three Phase Front-End PDU with 208V Line Cord
37L6885	NetBAY Dual Cord Power Distribution Unit
Rack Mount Uninterruptible Power Supply (UPS)[3]	
32P1020	APC 2U Smart-UPS 1400RMB
32P1022	APC 2U Smart-UPS 1400RMiB
2130R31	UPS3000XHV[4]
37L6861	APC Smart-UPS 5000RMB
37L6862	APC Smart-UPS 5000RMiB
32P1692	UPS Extend Run Battery Pack
21303RX	UPS 7500XHV
21304RX	UPS 10000XHV
39Y8857	UPS Extend Run Battery Pack

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Notes:

1. xSeries 336 ships with a single 585w hot-swap capable power supply, a rack power cable and line cord. A second hot-swap power supply is optional for redundancy.
2. The power supply ships with a single 2.8m rack power Y-cable which replaces the system's standard power cable. When used in conjunction with multiple x336s, the Y-cable is designed to be split between x336s. Therefore, the number of PDU outlets used is reduced and a certain level of redundancy is provided.
3. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.

SBB Number	Option Number	Feature Code	Description
			Racks
-	9306420	-	NetBAY42 Standard Rack Cabinet
-	9306421	-	NetBAY42 Standard Expansion Rack Cabinet
-	9306250	-	NetBAY25 Standard Rack Cabinet
-	93061RX	-	NetBay11 Standard Rack Cabinet
-	93072RX	-	IBM 25U Standard Rack
-	93073EX	-	IBM 42U Standard Rack Extension
-	93072RX	-	IBM 25U Standard Rack
-	93074RX	-	IBM 42U Standard Rack
-	93074XX	-	IBM 42U Standard Rack Extension
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
			Rack Console Connectivity[1]
-	17351GX	-	NetBay Local Console Manager
-	17352GX	-	NetBay Remote Console Manager
-	39M2896	-	250mm KVM Conversion Option
-	39M2897	-	1.5m KVM Conversion Option
-	17351LX	-	NetBay 1x4 Console Switch
-	17352LX	-	NetBay 2x8 Console Switch
			Monitors
-	17232UX	-	2U Flat Panel Monitor Console Kit (with PS/2 US keyboard)[2]
-	17233RX	-	2U Flat Panel Monitor Console Kit (without keyboard)[2]
-	90P0721	-	L170p ThinkVision 17in LCD Flat Panel Monitor (432mm, 17in viewable image), business black
-	49387NU	-	IBM C117 17" CRT Monitor
-	494215U	-	IBM T115 15" TFT Monitor
-	494317U	-	IBM T117 17" TFT Monitor
-	6636AB1	-	IBM L150 ThinkVision 15" Flat Panel Monitor
-	6636HB1	-	IBM L150p ThinkVision 15" Flat Panel Monitor
-	6734AB0	-	IBM L170 ThinkVision 17" Flat Panel Monitor
-	6734HB0	-	IBM L170p ThinkVision 17" Flat Panel Monitor

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SBB Number	Option Number	Feature Code	Description
-	673766N	-	IBM C170 ThinkVision 17" Monitor
			Keyboard and Mouse
02R3206	25R6968	8800	Preferred Pro Full-size Keyboard - 104 Keys, business black
-	90P0777	-	USB Keyboard Enhanced Performance Keyboard - US English
0008660	40K5372	8660	USB Travel Keyboard with UltraNav - US English
-	90P0740	-	Sleek 2-Button Mouse, business black
40K9491	40K9200	8912	USB Optical Wheel Mouse
33P2979	33L3252	8907	SpaceBall 3D Input Device
32P8917	28L3644	8874	IBM 87-Key Space Saver II PS/2 Keyboard
-	06P4069	-	IBM USB Optical Wheel Mouse
-	31P7405	-	IBM 3-Button ScrollPoint Mouse
-	31P8700	-	IBM ScrollPoint Pro Optical Mouse USB and PS/2
-	31P7415	-	IBM Preferred Pro Full-size Keyboard
-	31P8950	-	IBM USB Keyboard with UltraNav
-	31P9490	-	IBM USB Travel Keyboard with UltraNav
18R9856	73P2620	8881	IBM USB Keyboard Enhanced Performance
			Other Accessories
-	-	-	-
Note: Refer to the Rack Cabinets and Options section for information concerning IBM racks and rack-supported devices.			

Notes:
1. USB accessories are not compatible with the NetBay console switches. They attach to a single USB-capable server.
2. Includes a 15in Flat Panel Monitor.

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xSeries 336 tape options

SBB Number	Option Number	Feature Code	Tape Drives	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
71P9176	39M5656	5355	36/72GB DDS/5 Internal SCSI Tape Drive	-	Ultra2 (16-bit)	89mm (3.5in) HH or 133mm (5.25in) HH	-
-	59P6719	-	40/80GB DLT VS80 Internal SCSI Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	-
-	59P6717	-	100/200GB LTO Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	-
71P9199	59P6736	5360	160/320GB SDLT SCSI Tape Drive Option	-	Ultra2 (16-bit)	133mm (5.25in) FH	-
-	59P6744	-	200/400GB LTO Full-High Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	4559FHX
Tape Autoloaders							
-	36232SX	-	1.28TB/2.56TB 36232SX SDLT320 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
-	360726X	-	3607 Series 1.8GB/3.6TB LTO Autoloader (Rack Mount)	-	-	-	-
-	87691VX	-	1U VXA-320 Tape Autoloader	-	-	-	-
External Tape Enclosures							
-	45591UX	-	NetBay 1U xSeries Tape Enclosure	-	Ultra160 (16-bit)	1U Rack	-
-	45594UX	-	4U Rackmount SCSI Tape Enclosure	-	Ultra2 (16-bit)	4U Rack	-
-	4559HHX	-	Half-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (2.52in tall)	-
-	4559FHX	-	Full-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (4.41in tall)	-
Note: Additional tape drive and tape library attributes, requirements and options can be found in the Tape Drive Attributes and Tape Library Attributes appendices, respectively.							

Notes:

1. This option contains: option part number of single drive - 39M5656 and option part number 5 Pack DDS Gen 5 (36/72 GB) Tape Media - 71P9158.

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Chapter 11. xSeries 346

The xSeries 346 is housed in a 19in rack-mountable drawer and also provides three USB ports (one front, two rear), one 9-pin serial port, two systems management RS-485 ports, an external SCSI port, keyboard port, mouse port, video port and an integrated ATI Radeon 7000M graphics controller with 16 MB of video memory. A keyboard and mouse is not provided.

Table 24. xSeries 346 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4, 5]	Form Factor	Power Supply Quantity (Std/Max)[6]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processors	Integrated Ethernet[7]	Storage Controller[8]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[9]
8840-05Y	-	2.8/800-2MB L2	1/2	1GB/16GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	Dual U320	Hot-swap	0/1.8TB[10]	DVD-ROM (8x-24x)	8/6	4/4
8840-15Y	-	3.0/800-2MB L2	1/2	1GB/16GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	Dual U320	Hot-swap	0/880.8GB[10]	DVD-ROM (8x-24x)	8/6	4/4
8840-16Y	-	3.0/800-2MB L2	1/2	1GB/16GB	Rack (2U)	2/2	PHF	Y[11]	Dual 1GB	Dual U320	Hot-swap	0/880.8GB[10]	DVD-ROM (8x-24X)	8/6	4/4
8840-25Y	-	3.2/800-2MB L2	1/2	1GB/16GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	Dual U320	Hot-swap	0/880.8GB[9]	DVD-ROM (8x-24x)	8/6	4/4
8840-35Y	-	3.4/800-2MB L2	1/2	1GB/16GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	Dual U320	Hot-swap	0/880.8GB[10]	DVD-ROM (8x-24x)	8/6	4/4
8840-36Y	-	3.4/800-2MB L2	1/2	1GB/16GB	Rack (2U)	2/2	PHF	Y[12]	Dual 1GB	Dual U320	Hot-swap	0/880.8GB[10]	DVD-ROM (8x-24x)	8/6	4/4
8840-45Y	-	3.6/800-2MB L2	1/2	1GB/16GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	Dual U320	Hot-swap	0/880.8GB[10]	DVD-ROM (8x-24x)	8/6	4/4
8840-55Y	-	3.8/800-2MB L2	1/2	1GB/16GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	Dual U320	Hot-swap	0/1.8TB[11]	DVD-ROM (8x-24x)	8/6	4/4
8840-D1Y	-	2.8/800-4MB L2 Dual Core	1/2	2GB/16GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	Dual U320	Hot-swap	0/1.8TB[11]	DVD-ROM (8x-24x)	8/6	4/4

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Table 24. xSeries 346 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4, 5]	Form Factor	Power Supply Quantity (Std/Max)[6]	Hot-swap (Power, Slots, HDD, Fans)	System Management Processors	Integrated Ethernet[7]	Storage Controller[8]	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[9]
8840-0RY	-	2.8/ 800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0/1800GB	CD/DVD R/W (24x)	8 / 6	4 / 4
8840-1RY	-	3.0/800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0/1800GB	CD/DVD R/W (24x)	8 / 6	4 / 4
8840-1SY	-	3.0/800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0 / 880.8GB	DVD-ROM (8x - 24x)	8 / 6	4 / 4
8840-2RY	-	3.2/800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0/1800GB	CD/DVD R/W (24x)	8 / 6	4 / 4
8840-3RY	-	3.4/ 800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0 / 1800GB	CD/DVD R/W (24x)	8 / 6	4 / 4
8840-3SY	-	3.4/ 800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0 / 880.8GB	DVD-ROM (8x - 24x)	8 / 6	4 / 4
8840-4RY	-	3.6/ 800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0 / 1800GB[11]	CD/DVD R/W (24x)	8 / 6	4 / 4
8840-5RY	-	3.8/ 800 2MB L2	1 / 2	1GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0 / 1800GB[11]	CD/DVD R/W (24x)	8 / 6	4 / 4
8840-DRY	-	2.80/800 4MB L2 Dual Core	1 / 2	2GB / 16GB	Rack (2U)	1 / 2	P H F	Y	Dual 1Gb	Dual U320	Hot-swap	0 / 1800GB[11]	CD/DVD R/W (24x)	8 / 6	4 / 4
xSeries 346 Storage Servers (NAS)															
8840-17Y[15]	Jun 27	3.0/800-2MB L2	1 / 2	1GB/ 16GB[15]	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	Serve RAID -7k	Hot-swap	72.8GB/ 1.2TB[17]	DVD-ROM (8x-24x)	8 / 0	4 / 4
8840-37Y[15]	Jun 27	3.4/800-2MB L2	1 / 2	1GB/ 16GB[15]	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	Serve RAID -7k	Hot-swap	72.8GB/ 1.2TB[17]	DVD-ROM (8x-24x)	8 / 4	4 / 4

Note: A Network Attached Storage (NAS) server is built and deployed to handle file serving only. The servers and clients that utilize the NAS file server connect through standard Ethernet connections and communicate with standard TCP/IP protocols.

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Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8840-01Y is 8840-01U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.
2. Not available from IBM after this date. Business Partner Inventory may be available.
3. Intel Xeon processor with Extended Memory 64 Technology (EM64T), L2 cache and an 800MHz (quad-pumped) Front Side Bus (FSB).
4. High-speed, two-way interleaved PC2-3200 RDIMMs. Maximum capacity requires replacing the standard DIMMs.
5. Memory-mirroring, hot-spare memory and Chipkill functions are supported. Chipkill is available on DIMMs 512MB and greater.
6. See 'Power and Accessories' section for more information on the power supplies.
7. Dual Broadcom 5721 Gigabit Ethernet controllers.
8. The integrated dual-channel, Ultra320 SCSI controller supports integrated RAID-0, 1 and 10.
9. PCI-E is an optional feature through an option upgrade that will replace two PCI 64-bit/133 MHz slots.
10. Maximum capacity is based on six 146.8GB HDDs.
11. Capacities are based on installation of six 300 GB slim-high, Ultra320 HDDs.
12. Models 0EY, E1Y, E2Y, E3Y, and E4Y ship standard with the ServeRAID-7k controller connected to 3 x 73.4GB SCSI HDDs.
13. This model ships standard with the Remote Supervisor Adapter II SlimLine adapter installed into a dedicated slot.
14. Models 17Y and 37Y hardware components come preconfigured and the Microsoft Windows Server 2003 operating system is pre-installed.
15. x346 Storage Server operating system supports a maximum of 4GB of memory.
16. x346 Storage Server NAS includes a preconfigured ServeRAID 7k adapter and two 36.4GB hot-swap SCSI 15k disk drives set up for RAID-1. Model 8840-17Y has four additional 300GB hot-swap SCSI disk drives preinstalled for data, providing a maximum internal data disk capacity of 1.2TB.
17. x346 Storage Server NAS includes a preconfigured ServeRAID 7k adapter and two 36.4GB hot-swap SCSI 15k disk drives set up for RAID-1. The maximum additional internal data disk capacity is 1.2TB.

xSeries 346 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
32R2237	40K2503	0626	2.8GHz/800MHz 2MB L2 Cache Xeon Processor	05Y, E3Y, 0RY
40K1635	40K2502	0450	2.8GHz/800MHz 4MB L2 Cache Dual Core Xeon Processor	DxY (2)
13M8285	40K2504	0354	3.0GHz/800MHz 2MB L2 Cache Xeon Processor	ExY, 15Y, 16Y, E1Y, 1RY, 1SY, 17Y
13M8286	40K2505	0371	3.2GHz/800MHz 2MB L2 Cache Xeon Processor	25Y, E2Y, 2RY
13M8287	40K2506	0372	3.4GHz/800MHz 2MB L2 Cache Xeon Processor	35Y, 36Y, 3RY, 3SY, 37Y, E4Y
13M8284	40K2507	0319	3.6GHz/800MHz 2MB L2 Cache Xeon Processor	45Y, 4RY
32R2238	40K2508	0627	3.8GHz/800MHz 2MB L2 Cache Xeon Processor	55Y, 5RY
Note: The x346 processor options support Intel's Extended Memory 64 Technology (EM64T).				

Notes:

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

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xSeries 346 memory options

SBB Number[1]	Option Number	Feature Code	Memory Options
73P2873	-	0503	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
-	39M5821	-	1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit
73P2874	-	0504	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
-	39M5809	-	2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit
73P4794	-	0505	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill)
-	39M5815	-	4GB PC2-3200 ECC DDR2 SDRAM RDIMM (2X2GB KIT) Option
90P0870	-	0501	256MB DDR-II SDRAM DIMM (non chip-kill)
-	73P3523	-	512MB (2x256MB) PC2-3200 ECC DDR2 RDIMM Kit
90P1218	-	0502	512MB DDR-II SDRAM DIMM (non chip-kill)
-	39M5818	-	1GB (2x512MB) PC2-3200 ECC DDR2 RDIMM Kit
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5813	-	0593	2GB PC2-3200 ECC DDR2 RDIMM SDRAM (chip-kill) Single rank
39M5816	-	0541	512MB DDR-II SDRAM DIMM (non chip-kill)
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
Note: 16GB of memory is available via eight DIMM slots. Due to two-way interleaving, installation of memory DIMMs in matched pairs is required beginning with DIMM slots one and two, then three and four, then five and six, then DIMM slots seven and eight. Memory-mirroring requires all installed DIMMs to match and effectively reduces available memory by half. Hot-spare memory requires all installed DIMMs to match except for the last pair which must be of equal size or greater than other installed pairs.			

Notes:
1. Quantity two of each SBB PN must be ordered to equal its corresponding option.
2. Supports Chipkill. Mixing Chipkill DIMMs with nonChipkill DIMMs will disable all Chipkill function.

Table 25. Standard Memory Configuration

Model	Std. DIMM Configuration
05Y, 15Y	512MB DDR-II SDRAM DIMM (non chip-kill)
25Y, 31Y, 32Y, 35Y, 41Y, 45Y	512MB DDR-II SDRAM DIMM (non chip-kill)
E1Y, E2Y	1GB PC3200 ECC DDR2 SDRAM RDIMM

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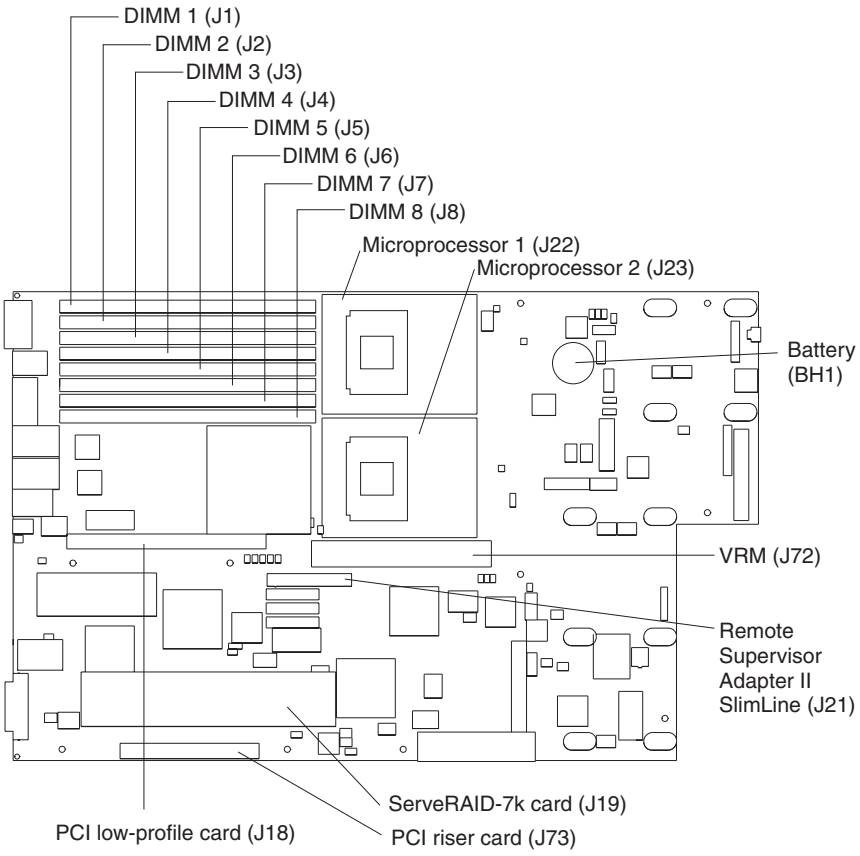

Figure 28. xSeries 346 system board

xSeries 346 internal cabling

xSeries 346 models are cabled internally with a single, 1-drop LVD SCSI cable, connecting one channel of the integrated, dual-channel Ultra320 SCSI controller to the hot-swap backplane. The second SCSI channel is wired to an external 0.8mm VHDCI SCSI connector.

A single IDE device is supported in all models.

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xSeries 346 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty
		Floppy Drives				
-	-	-	-	-	-	-
		Hot-swap Ultra320 HDDs				
90P1329	40K1023	5202	73.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	-	1 ... 6	6
90P1330	40K1024	5203	146.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	-	1 ... 6	6
90P1331	40K1025	5231	300GB U320 10K SCSI Hot-Swap HDD	-	1 ... 6	6
90P1386	40K1026	5232	36GB 15K U320 SCSI HS	-	1 ... 6	6
90P1387	40K1027	5233	73GB 15K U320 SCSI HS	-	1 ... 6	6
90P1388	40K1028	5234	146GB U320 15K SCSI Hot-Swap HDD	-	1 ... 6	-
40K1055	30R5094	5165	73.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	SSL	1 ... 6	-
40K1056	30R5095	5166	146.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	SSL	1 ... 6	-
40K1057	40K1025	5167	300GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	SSL	1 ... 6	-
40K1058	3290734	5168	36.4GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	SSL	1 ... 6	-
40K1059	32P0735	5169	73.4GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	-	-	-
40K1060	40K1024	5170	146.4GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	-	-	-
		Optical Devices[3]				
-	-	-	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Max Qty
			External Storage Expansion Units[4]	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	171010U	-	FAStT EXP100 Storage Expansion Unit	Rack (3U)		
-	17401RU	-	FAStT EXP700 Storage Expansion Unit	Rack (3U)		
-	1724100	-	FAStT100 Storage Server	Rack (3U)		
-	172260U	-	FAStT600 Storage Server	Rack (3U)		
-	24P8215	-	FAStT600 Turbo Storage Server	Rack (3U)		
-	17226LU	-	FAStT600 Entry Storage Server	Rack (3U)		
-	17011RS	-	TotalStorage DS300 - Single Controller	Rack (3U)		
-	17001RS	-	TotalStorage DS400 - Single Controller	Rack (3U)		

Notes:
1. Installation may require removing standard devices.
2. These HDDs are supported on machine type 8840-E2Y.
3. All models ship standard with an 8X Max DVD-ROM drive.
4. An optional SCSI, RAID or Fibre controller is required in order to attach to the system.

Table 26. Bay Usage

Bay	Form Factor	Height	Front Access	Usage
1	89mm (3.5in)	SSL	Yes	HDD
2	89mm (3.5in)	SSL	Yes	HDD
3	89mm (3.5in)	SSL	Yes	HDD
4	89mm (3.5in)	SSL	Yes	HDD
5	89mm (3.5in)	SSL	Yes	HDD/Tape Kit[1]
6	89mm (3.5in)	SSL	Yes	HDD/Tape Kit[1]
7	89mm (3.5in)	SSL	Yes	Std. FDD
8	133mm (5.25in)	Ultra-Slim	Yes	Std. Optical

Notes:
1. An optional tape drive enablement kit which supports one tape drive can be installed which occupies both bays 5 and 6.

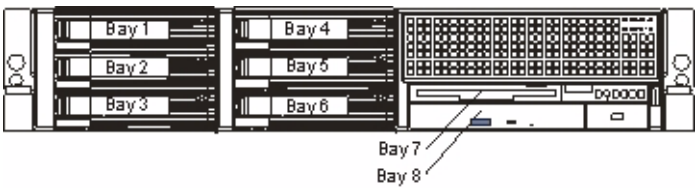

Figure 29. xSeries 346 front view

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xSeries 346 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug[1]
			Storage Controllers				
39R8819	39R8816	1686	ServeRAID-6M Controller (256MB Cache)[2]	Full	64-bit/ 133MHz	3, 4	-
39R8820	39R8815	1685	ServeRAID-6M Controller (128MB Cache)[2]	Full	64-bit/ 133MHz	3, 4	-
39R8802	39R8800	1679	ServeRAID-7k Controller [3]	-	-	-	-
39R8752	39R8743	1680	Ultra320 SCSI Controller 2[4, 5]	Half	64-bit/ 133MHz	-	-
19K1311	19K1246	1661	FAStT FC-2 Host Bus Adapter	-	-	-	-
24P2334	00N6881	1662	FAStT Host Adapter	Half	64-bit/ 133Mhz	-	-
39R8802	39R8800	1679	IBM ServeRAID-7k Ultra320 Integrated SCSI Controller	-	-	-	-
			External Disk Systems and Options[7]				
-	1724100	-	FAStT100 Storage Server	-	-	-	-
-	172260U	-	FAStT600 Storage Server	-	-	-	-
-	24P8215	-	FAStT600 Turbo Storage Server	-	-	-	-
-	17226LU	-	FAStT600 Entry Storage Server	-	-	-	-
-	17421RU	-	FAStT700 Storage Server	-	-	-	-
-	174290U	-	FAStT900 Storage Server	-	-	-	-
-	2005H16	-	TotalStorage SAN Fabric Switch Model H16	-	-	-	-
-	202612E	-	TotalStorage SAN 12M-1 Switch, 12-port	-	-	-	-
			Networking				
39Y6071	39Y6066	1484	NetXtreme II 1000 Express Ethernet Adapter	-	-	-	-
39Y6129	39Y6126	2944	PRO/1000 PT Dual Port Server Adapter by Intel	-	-	-	-
25P2889	06P3601	1526	10/100 Ethernet Server Adapter	Half	64-bit/ 133MHz	3, 4[9]	-
39Y6108	39Y6105	1488	PRO/1000 MT Server Adapter by Intel	Half	64-Bit/ 133MHz	1...4[10]	-
33P2970	22P6901	1506	PCI Wireless LAN Adapter	-	-	-	-
73P3505	39Y6098	1508	NetXtreme 1000 Express Ethernet Adapter	-	-	-	X
73P4105	39Y6079	1510	NetXtreme 1000 T Ethernet Adapter 2	-	-	3, 4[9]	X

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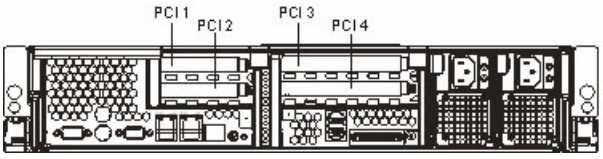
SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug[1]
73P4205	39Y6093	1511	NetXtreme 1000 T Dual Port Ethernet Adapter 2	-	-	3, 4[9]	X
		System Management					
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	Half	-	-	-
		Other I/O					
-	41Y8901	-	2U PCI Riser Card for PCI Express Capability[11]	-	-	-	-
-	1519200	-	Integrated xSeries Adapter for iSeries	-	-	-	-
-	31P7201	-	V.90 Data/Fax Soft Modem	-	-	-	-

Notes:

1. xSeries 346 does not have any Active-PCI slots.
2. Supported for external attachment only and not for internal HDDs. A second controller is only supported if the integrated SCSI controller is disabled or a ServeRAID-7K is installed.
3. Installs into a dedicated slot. Does not consume a PCI slot. Quantity one allowed.
4. A second controller is only supported if the integrated SCSI controller is disabled or a ServeRAID-7K is installed.
5. Support is for tape only. Tape support requires the PCI slot in which the adapter is installed be defined as the boot device slot via the BIOS setup utility.
6. Only one card is allowed in slot 3 or 4 unless 71P8653 is selected, then a maximum of two may be populated in slots 3 & 4. Can only be pop in slot 3 & 4 when PCI-X Riser SBB 26K5074 also be installed.
7. See Fibre Channel Solutions Overview section for additional configuration information.
8. The option number 39Y6093 contains both a standard (ATX) bracket and a low-profile bracket and therefore is supported in all slots, when using the appropriate bracket. The SBB number 73P4205 contains a standard (ATX) bracket only and therefore is supported in slots 3 and 4 only.
9. PCI-X Riser SBB 26K5074 must also be installed.
10. Can be installed in slot 1 & 2 with 2U bracket.
11. The 2U PCI Express Riser Card is not included as standard equipment.



Slot 1: Bus A, 64-bit, 100MHz, 3.3v, PCI-X, low-profile, half-length
Slot 2: Bus A, 64-bit, 100MHz, 3.3v, PCI-X, low-profile, half-length
Slot 3: Bus B, 64-bit, 133MHz, 3.3v, PCI-X, full-length
Slot 4: Bus C, 64-bit, 133MHz, 3.3v, PCI-X, full-length

Figure 30. xSeries 346 rear view

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xSeries 346 power and accessories

SBB Number	Option Number	Feature Code	Description
			Power[1]
40K6506	40K1915	1971	625w Hot-Swap Power Supply (North America)
-	40K1916	-	625w Hot-Swap Power Supply (Worldwide)[2]
			Power Distribution Unit
-	39M2816	-	IBM DPI C13 PDU+C13 without line cord
			Rack Mount Uninterruptible Power Supply (UPS)[3]
-	32P1020	-	APC 2U Smart-UPS 1400RMB
-	32P1022	-	APC 2U Smart-UPS 1400RMiB
-	2130R31	-	UPS3000XHV[4]
-	37L6861	-	APC Smart-UPS 5000RMB
-	37L6862	-	APC Smart-UPS 5000RMiB

Notes:
1. Non-redundant power models ship with a single 625w hot-swap capable power supply, a rack power cable and a line cord. Redundant power models ship with quantity two of each. A second hot-swap power supply is optional for non-redundant power models.
2. Does not ship with a line cord.
3. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.
4. Height is 2U. See Rack Cabinets and Options section for supported IBM racks.

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Option Number	Description
Rack Console Connectivity[1]	
17351GX	NetBAY Local Console Manager
17352GX	NetBAY Remote Console Manager
39M2896	250mm KVM Conversion Option
39M2897	1.5m KVM Conversion Option
17351LX	NetBAY 1x4 Console Switch
17352LX	NetBAY 2x8 Console Switch
Monitors	
17233RX	IBM 1U 15in Flat Panel Monitor Console Kit
17231RX	IBM 1U 17in Flat Panel Monitor Console Kit w/Optical Drive Bay
17232UX	2U Flat Panel Monitor Console Kit (with PS/2 US keyboard[2]
17233RX	2U Flat Panel Monitor Console Kit (without keyboard)
6636HB1	L150p ThinkVision 15in LCD Flat Panel Monitor (381mm, 15in viewable image), business black
63324HN	E74 Color Monitor 17in (406mm, 16in viewable image), business black
633147N	E54 Color Monitor 15in (350mm, 13.8in viewable image), business black
6636AB1	ThinkVision L150 15in LCD Flat Panel Monitor, (381mm, 15in viewable image), business black
673766N	C170 ThinkVision 17in CRT Flat Panel Monitor (406.4mm, 16in viewable image), business black
49387NU	IBM C117 17" CRT Monitor
494215U	IBM T115 15" TFT Monitor
494317U	IBM T117 17" TFT Monitor
Keyboard and Mouse	
31P7415	Preferred Pro Full-size Keyboard - 104 Keys, business black
31P8950	USB Keyboard with UltraNav
33L3244	Sleek USB Mouse
28L3673	Sleek 2-Button Mouse, business black
17235RX	IBM Rack Keyboard Tray
Note: Refer to the Rack Cabinets and Options section for information concerning IBM racks and rack-supported devices.	

Notes:
1. USB accessories are not compatible with the NetBAY console switches. They attach to a single USB-capable server.
2. Includes a 15in Flat Panel Monitor.

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xSeries 346 tape options

Option Number	Tape Drive	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
	-	-	-	-	-
Tape Autoloaders					
87691VX	1U VXA-320 Tape Autoloader	-	-	-	-
External Tape Enclosures					
45591UX	NetBay 1U xSeries Tape Enclosure	-	-	-	-
4559HHX	Half-High Tape Enclosure	-	-	-	-
4559FHX	Full-High Tape Enclosure	-	-	-	-
3503B1X	Full-high SCSI Tape Enclosure	-	-	-	-
Associated Options					
-	-	-	-	-	-
Note: Additional tape drive and tape library attributes, requirements and options can be found in the Tape Drive Attributes and Tape Library Attributes appendices, respectively.					

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Chapter 12. System x3400 (7973, 7974)

Table 27. System x3400, entry-level At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
7973-42Y	1.60/1066 FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1 / 1	F	Y	1GB	SATA	Simple Swap	0GB/ 1000GB	48X-20X CD-ROM	7 / 7	6 / 6
7973-52Y	1.86/1066 FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1 / 1	F	Y	1GB	SATA	Simple Swap	0GB/ 1000GB	48X-20X CD-ROM	7 / 7	6 / 6
7973-62Y	2.0/1333 FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1 / 1	F	Y	1GB	SATA	Simple Swap	0GB/ 1000GB	48X-20X CD-ROM	7 / 7	6 / 6
7974-42Y	1.60/1066 FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1 / 1	F	Y	1GB	SATA	Simple Swap	0GB/ 1000GB	48X-20X CD-ROM	7 / 7	6 / 6
7974-52Y	1.86/1066 FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1 / 1	F	Y	1GB	SATA	Simple Swap	0GB/ 1000GB	48X-20X CD-ROM	7 / 7	6 / 6
7974-62Y	2.0G/1333 FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1 / 1	F	Y	1GB	SATA	Simple Swap	0GB/ 1000GB	48X-20X CD-ROM	7 / 7	6 / 6

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7973-42Y is 7973-42U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.

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System x3400 (7973, 7974) processor options

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
41Y4257	40K1231	1296	Additional Dual-Core Intel Xeon Processor 5110 (1.60GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	42Y
41Y4258	40K1232	1297	Additional Dual-Core Intel Xeon Processor 5120 (1.86GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	52Y
41Y4259	40K1233	1298	Additional Dual-Core Intel Xeon Processor 5130 (2.0GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	62Y

Notes:

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

System x3400 (7973, 7974) memory options

SBB Number	Option Number	Feature Code	Memory Description
		Memory DIMMs [1]	
39M5780	-	0546	512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5783	-	0542	1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5789	-	0544	2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
-	39M5782	-	1 GB (2 x 512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz)
-	39M5785	-	2GB kit (2 x1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz)
-	39M5791	-	4GB kit (2 x 2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz)

Notes:

1. Memory mirroring requires an exact match between the DIMM types and sizes on both memory buses. Memory-mirroring effectively reduces available memory by half.

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System x3400 (7973, 7974) hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
			SATA Simple-Swap HDDs			
39M4501	39M4500	5290	80GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	8…11	4
39M4505	39M4504	5291	160GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	8…11	4
39M4509	39M4508	5292	250GB 7200 RPM 3.5" Simple-Swap SATA HDD	SL	8…11	4
			Optical Devices			
39M6344	32R2905	4139	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	HH	1..2	2
39M6345	32R2906	4140	IBM DVD Multi-Burner Plus Drive	HH	1..2	2

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25in)	-	-	CD-R
2	133 mm (5.25in)	-	-	-
3	133 mm (5.25in)	-	-	-
4	89mm (3.5in)	-	-	-
5	89mm (3.5in)	-	-	-
6	89mm (3.5in)	-	-	-
7	89mm (3.5in)	-	-	-
8	89mm (3.5in)	-	-	HDD

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System x3400 (7973, 7974) I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
Storage Controllers							
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	-	-	-	-
Networking							
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	-	32/64 bit	4….6	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	-	32/64 bit	4….6	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	-	32/64 bit	4….6	-
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	-	-	-	-
39Y6091	39Y6088	1487	NetXtreme 1000 S + Ethernet Adapter	-	-	-	-
39Y6096	39Y6093	1489	NetXtreme 1000 T + Dual Port Ethernet Adapter	-	-	-	-
39Y6101	39Y6098	1486	NetXtreme 1000 Express G Ethernet Adapter	-	-	-	-
Systems Management							
39Y9567	39Y9566	1605	Remote Supervisor Adapter II Slimline Refresh 1	-	-	RSA SL Socket	-

Slot	Type	Frequency MHz
PCI Slot 1	PCI-E x 8	-
PCI Slot 2	PCI-E x 8	-
PCI Slot 3	PCI-E x 8	-
PCI Slot 4	PCI-X 64-bit/133Mhz	133
PCI Slot 5	PCI-X 64-bit/133Mhz	133
PCI Slot 6	PCI-32-bit/33Mhz	33
RSA SL Socket	-	-
ServeRAID	-	-

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System x3400 (7973, 7974) power and accessories

Option Number	Description
Power	
-	-
Power Distribution Units	
39Y8905	DPI NEMA Rack PDU
39Y8923	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) line cord
39Y8935	32amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
39Y8938	30amp/125V Front-end PDU with NEMA L5-30P connector
39Y8939	30amp/250V Front-end PDU with NEMA L6-30P connector
39Y8940	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
39Y8942	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
39Y8945	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
39Y8948	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
39Y8951	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
Uninterruptible Power Supply (UPS)	
2130R31	IBM UPS3000XHV 200-240V (US HV cord)
21303RX	IBM UPS 7500XHV
21304RX	IBM UPS 10000XHV
2130R3X	IBM UPS 1000T LV
2130R4X	IBM UPS 1000T HV
2130R5X	IBM UPS 1500T LV
2130R6X	IBM UPS 1500T HV
2130R8X	IBM UPS 1000T JV
2130R9X	IBM UPS 1500T JV
39Y8857	IBM UPS 3U Online Battery Pack

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Option Number	Description
Rack and NetBAY	
93072RX	IBM 25U Standard Rack
93074RX	IBM 42U Standard Rack
93074XX	IBM 42U Standard Rack Extension
93084RX	NetBAY42 Enterprise Rack Cabinet
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
14104RX	IBM Linux Cluster Rack
39M2895	IBM USB Conversion Option
39M2896	IBM Short KVM Conversion Option
39M2897	IBM Long KVM Conversion Option
Rack/Tower Conversion Kits	
39Y8382	5Ux26D Tower to Rack Conversion Kit
Console Connectivity	
17351GX	IBM 2x8 Local Console Manager
17351LX	IBM 1x8 Local Console Manager
17352GX	IBM Global 2x16 Console Manager
17352LX	IBM 2x16 Local Console Manager
17354GX	IBM Global 4x16 Console Manager
1735L04	NetBAY Local Console Manager
1735R16	NetBAY Remote Console Manager
Monitors	
4938-7xx	IBM C117 17" (15.9inch VIS) FST CRT
4942-15x	IBM T115 15" TFT LCD
4943-17x	IBM T117 17" TFT LCD
Keyboard and Mouse	
40K5372	IBM Keyboard with Integrated Pointing Device - 3m Cable - Black - USB - US English
40K9584	IBM Preferred Pro Keyboard- Full Width - 2m Cable - Black - USB - US English
40K9200	IBM 2 Button Optical Wheel Mouse - Black - USB
40K9201	IBM 3 Button Optical Mouse - Black - USB

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System x3400 (7973, 7974) tape options

SBB Number	Option Number	Feature Code	Tape Drive	Bays Supported	Storage Interface	Form actor	Ext Tape Enclosures
39M5621	25R0005	5364	IBM Half High LTO Gen 2 Tape Drive	2....3	-	-	-
39M5623	25R0012	5363	LTO 400/800GB Full High Gen 3 Internal Back -Up	2....3	-	-	-
39M5624	25R0045	5362	VXA 3 Half High Internal Back-up	2....3	-	-	-
71P9176	71P9145	5355	36/72GB DDS Generation 5 Tape Drive	2....3	-	-	-
Tape Autoloaders							
-	-	-	-	-	-	-	-
External Tape Enclosures							
-	45591UX	-	IBM 1U xSeries Tape Enclosure Rack or Tower	-	-	-	-
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-	-	-	-
External Tape Libraries							
-	-	-	-	-	-	-	-

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Chapter 13. System x3400 (7975, 7976)

Table 28. System x3400 (7975, 7976) At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[2]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[2]
7975-42Y	1.60GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7975-52Y	1.86GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7975-62Y	2.0GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7975-4AY	1.60GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7975-5AY	1.86GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7975-6AY	2.0GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7976-42Y	1.60GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7976-52Y	1.86GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7976-62Y	2.0GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8

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Table 28. System x3400 (7975, 7976) At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[2]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[2]
7976-4AY	1.60GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7976-5AY	1.86GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8
7976-6AY	2.0GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 32GB	5U Tower	1/2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	48X-20X CD-ROM	11 / 10	8 / 8

Notes:
1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7975-42Y is 7975-42U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.
2. To achieve maximum capacity, the Hot-swap SAS/SATA 4-Pac HDD option upgrade kit must be installed.

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System x3400 (7975, 7976) processor options

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
41Y4263	40K1231	1380	Additional Dual-Core Intel Xeon Processor 5110 (1.60GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	4AY
41Y4264	40K1232	1381	Additional Dual-Core Intel Xeon Processor 5120 (1.86GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	5AY
41Y4265	40K1233	1382	Additional Dual-Core Intel Xeon Processor 5130 (2.0GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	6AY

Notes:

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
13M7421	13N0694	0346	3.16GHz 667MHz 1M L2 Cache	1RY, E5Y
13M7423	13N0695	0347	3.66GHz 667MHz 1M L2 Cache	2RY, E2Y, E1Y, E5Y, E7Y
31R3775	-	0651	Intel Xeon Processor 7020	3RY
31R3777	-	0652	Intel Xeon Processor 7040	4RY

System x3400 (7975, 7976) memory options

SBB Number	Option Number	Feature Code	Memory Description
			Memory Cards
-	-	-	-
			Memory DIMMs [1]
39M5780	39M5782	0546	512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5783	39M5785	0542	1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5789	39M5791	0545	2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz

Notes:

1. Memory mirroring requires an exact match between the DIMM types and sizes on both memory buses. Memory-mirroring effectively reduces available memory by half.

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SBB Number	Option Number	Feature code	Memory Description[1, 2]
			Memory Cards
13M7285	13M7409	4219	4-DIMM DDR2 MEMORY CARD[3]
			Memory DIMMs
73P2873		0503	512MB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
73P2874		0504	1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P2866		2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
73P2875		0512	2GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P2867		4GB (2x2GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
30R5147		0535	4GB PC2-3200R DDR2 CL3 ECC SDRAM RDIMM
	30R5145		8 GB (2x4 GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM[4]
Note: To help optimize performance, use 2 memory cards and at least 8 DIMMs.			

Table 29. 8-DIMM Configuration in non-mirrored mode

Number of DIMMs	DIMM Slots
1	1
2	1, 4
4	1, 4, 7, 10
6	1, 4, 7, 10, 2, 5
8	1, 4, 7, 10, 2, 5, 8, 11

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Table 30. 8-DIMM Configuration in mirrored mode

Number of DIMMs	DIMM Slots
4	1, 4, 7, 10
8	1, 4, 7, 10, 2, 5, 8, 11

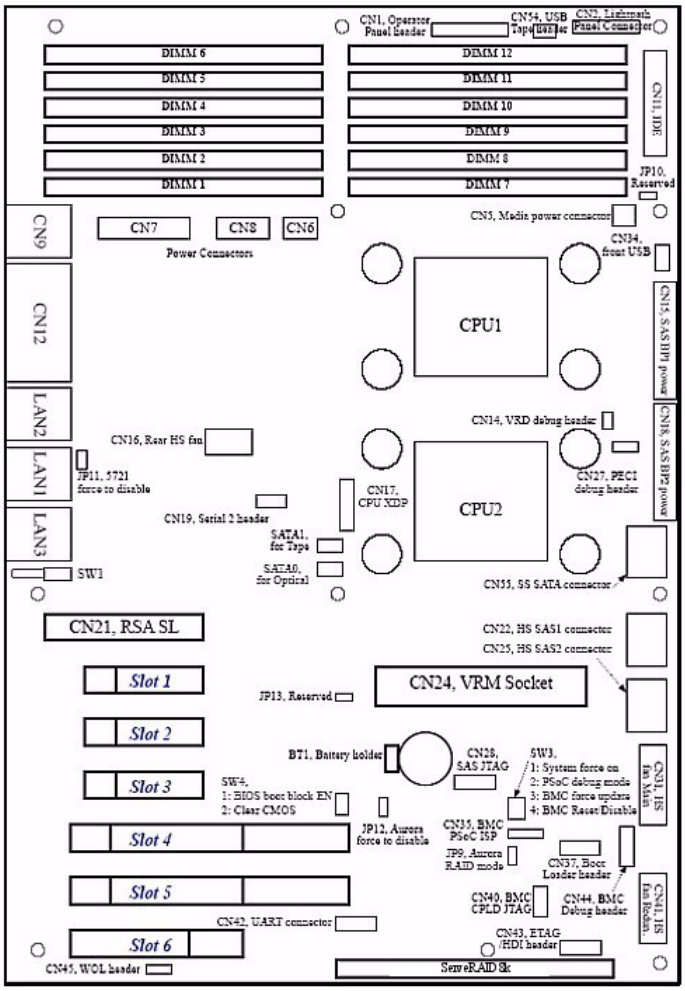

Figure 31. x3400 (7975, 7976) system board

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System x3400 (7975, 7976) hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
SATA Hot-Swap HDDs						
39M4519	39M4518	5299	80GB Hot-Swap SATA HDD	SL	4….11	8
39M4523	39M4522	5150	160GB Hot-Swap SATA HDD	SL	4….11	8
39M4527	39M4526	5151	250GB Hot-Swap SATA HDD	SL	4….11	8
SAS Hot-Swap HDDs						
40K1071	40K1039	5163	73GB 10K 3.5" SAS Hot-Swap HDD	SL	4….11	8
40K1072	40K1040	5164	146GB 10K 3.5" SAS Hot-Swap HDD	SL	4….11	8
40K1073	40K1041	5156	300GB 10K 3.5" SAS Hot-Swap HDD	SL	4….11	8
40K1074	40K1042	5160	36GB 15K 3.5" SAS Hot-Swap HDD	SL	4….11	8
40K1075	40K1043	5161	73GB 15K 3.5" SAS Hot-Swap HDD	SL	4….11	8
40K1076	40K1044	5162	146GB 15K 3.5" SAS Hot-Swap HDD	SL	4….11	8
Optical Devices						
-	-	-	-	-	-	-
Associated Options						
39Y8338	39Y8406	4307	Hot-swap SAS/SATA 4-Pac HDD option upgrade kit	-	-	-

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25in)	-	-	-
2	133 mm (5.25in)	-	-	-
3	133 mm (5.25in)	-	-	-
4	89mm (3.5in)	-	-	HDD
5	89mm (3.5in)	-	-	HDD
6	89mm (3.5in)	-	-	HDD
7	89mm (3.5in)	-	-	HDD
8	89mm (3.5in)	-	-	HDD
9	89mm (3.5in)	-	-	HDD
10	89mm (3.5in)	-	-	HDD
11	89mm (3.5in)	-	-	HDD

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System x3400 (7975, 7976) I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
			Storage Controllers				
25R8077	25R8064	1670	IBM ServeRAID-8k SAS Controller	-	-	ServeRAID	-
25R8080	25R8065	1671	IBM ServeRAID 8k-l SAS Controller	-	-	ServeRAID	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	-	-	-	-
			Networking				
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	-	32/64 bit	4….6	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	-	32/64 bit	4….6	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	-	32/64 bit	4….6	-
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	-	-	-	-
39Y6091	39Y6088	1487	NetXtreme 1000 S + Ethernet Adapter	-	-	-	-
39Y6096	39Y6093	1489	NetXtreme 1000 T + Dual Port Ethernet Adapter	-	-	-	-
39Y6101	39Y6098	1486	NetXtreme 1000 Express G Ethernet Adapter	-	-	-	-
			Systems Management				
39Y9567	39Y9566	1605	Remote Supervisor Adapter II Slimline Refresh 1	-	-	-	-

SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
			Storage Controllers				
02R0996	02R0988	1653	ServeRAID-6M Controller (256MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
02R0995	32P0033	1653	ServeRAID-6M Controller (128MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
13N2232	13N2227	1664	ServeRAID 8i-Controller	Half	64-bit/ 133MHz	Dedicated Slot	-
13N2252	13N2249	1656	Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1 ... 6	-
			External Disk Systems and Options				
24P0963	24P0960	1650	DS400 Host Bus Adapter	Half	64-bit/ 133MHz	1 ... 6	-

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-	-
-	17012RD	-	TotalStorage DS300 - Dual Controller	-	-	-	-
-	172260U	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17226LU	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17226LX	-	DS4300 Midrange Disk (6LX)	-	-	-	-
-	17226XX	-	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-	-
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-	-	-	-
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-	-	-	-
-	17421xx	-	TotalStorage DS4400 Midrange Disk System (all models)	-	-	-	-
-	17421RX	-	DS4400 Midrange Disk System	-	-	-	-
-	17241XX	-	TotalStorage DS4100 Midrange Disk System (all models)	-	-	-	-
-	24P82XX	-	TotalStorage DS4300 Model 60U with Turbo	-	-	-	-
-	17429XX	-	TotalStorage DS4500 Midrange Disk System (all models)	-	-	-	-
-	174290X	-	DS4500 Midrange Disk System	-	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-
-	2005H08	-	TotalStorage Fibre Channel Switch H08	-	-	-	-
-	2005H16	-	TotalStorage Fibre Channel Switch H16	-	-	-	-
-	2006L10	-	TotalStorage Storage Switch	-	-	-	-
-	2034212	-	McData 4300 Fabric Switch (12-port)	-	-	-	-
Networking							
31P9605	31P9601	1512	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/ 133MHz	1 ... 6	X

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
73P4005	73P4001	1509	NetXtreme 1000 SX Fiber Ethernet Adapter 2[3]	Half	64-bit/ 133MHz	1 ... 6	-
73P4105	73P4101	1510	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
73P4205	73P4201	1511	NetXtreme 1000 T Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
-	30R5001	-	10 Gb Ethernet Sr Server Adapter	Half	64-bit/ 266MHz	-	-
Systems Management							
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	-	-	-	-

Slot	Type	Frequency MHz
PCI Slot 1	PCI-E x 8	-
PCI Slot 2	PCI-E x 8	-
PCI Slot 3	PCI-E x 8	-
PCI Slot 4	PCI-X 64-bit/133Mhz	133
PCI Slot 5	PCI-X 64-bit/133Mhz	133
PCI Slot 6	PCI-32-bit/33Mhz	33
RSA SL Socket	-	-
ServeRAID	-	-

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System x3400 (7975, 7976) power and accessories

Option Number	Description
Power	
-	-
Power Distribution Units	
39Y8905	DPI NEMA Rack PDU
39Y8923	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) line cord
39Y8935	32amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
39Y8938	30amp/125V Front-end PDU with NEMA L5-30P connector
39Y8939	30amp/250V Front-end PDU with NEMA L6-30P connector
39Y8940	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
39Y8942	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
39Y8945	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
39Y8948	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
39Y8951	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
Uninterruptible Power Supply (UPS)	
2130R31	IBM UPS3000XHV 200-240V (US HV cord)
21303RX	IBM UPS 7500XHV
21304RX	IBM UPS 10000XHV
2130R3X	IBM UPS 1000T LV
2130R4X	IBM UPS 1000T HV
2130R5X	IBM UPS 1500T LV
2130R6X	IBM UPS 1500T HV
2130R8X	IBM UPS 1000T JV
2130R9X	IBM UPS 1500T JV
39Y8857	IBM UPS 3U Online Battery Pack

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Option Number	Description
Rack and NetBAY	
141042X	IBM Linux Cluster Rack
93072RX	IBM 25U Standard Rack
93074RX	IBM 42U Standard Rack
93074XX	IBM 42U Standard Rack Extension
93084RX	NetBAY42 Enterprise Rack Cabinet
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
14104RX	IBM Linux Cluster Rack
39M2895	IBM USB Conversion Option
39M2896	IBM Short KVM Conversion Option
39M2897	IBM Long KVM Conversion Option
Rack/Tower Conversion Kits	
39Y8382	5Ux26D Tower to Rack Conversion Kit
Console Connectivity	
17351GX	IBM 2x8 Local Console Manager
17351LX	IBM 1x8 Local Console Manager
17352GX	IBM Global 2x16 Console Manager
17352LX	IBM 2x16 Local Console Manager
17354GX	IBM Global 4x16 Console Manager
1735L04	NetBAY Local Console Manager
1735R16	NetBAY Remote Console Manager
Monitors	
4938-7xx	IBM C117 17" (15.9inch VIS) FST CRT
4942-15x	IBM T115 15" TFT LCD
4943-17x	IBM T117 17" TFT LCD
Keyboard and Mouse	
40K5372	IBM Keyboard with Integrated Pointing Device - 3m Cable - Black - USB - US English
40K9584	IBM Preferred Pro Keyboard- Full Width - 2m Cable - Black - USB - US English
40K9200	IBM 2 Button Optical Wheel Mouse - Black - USB
40K9201	IBM 3 Button Optical Mouse - Black - USB

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SBB Number	Option Number	Feature Code	Description
			Rack and NetBAY
-	-	-	Refer to Rack Cabinets and Options section for information concerning IBM racks and rack-supported devices.
			Console Connectivity[1]
-	17351LX	-	1x8 Local Console Manager
-	17352LX	-	2x16 Local Console Manager
-	17354GX	-	4x16 Global Console Manager
			Monitors
-	90P0717	-	L150p 15in business black flat panel LCD monitor
-	90P0726	-	C170 17in (16in viewable image) CRT business black full flat screen shadow mask monitor
			Keyboard and Mouse[2]
02R3206	25R6968	8800	Preferred Pro Full-size Keyboard - 104 Keys, business black[3]
-	90P0777	-	USB Keyboard Enhanced Performance Keyboard - US English
-	73P3144	-	PS/2 Keyboard with UltraNav
13M7124	90P0743	8908	USB Optical Wheel Mouse
-	90P0742	-	Optical 3-button ScrollPoint Mouse - 800dpi - PS/2 & USB (Business Black)
			Other Accessories
-	-	-	-

System x3400 (7975, 7976) tape options

SBB Number	Option Number	Feature Code	Tape Drive	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosures
39M5621	25R0005	5364	IBM Half High LTO Gen 2 Tape Drive	2....3	-	-	-
39M5623	25R0012	5363	LTO 400/800GB Full High Gen 3 Internal Back -Up	2....3	-	-	-
39M5624	25R0045	5362	VXA 3 Half High Internal Back-up	2....3	-	-	-

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SBB Number	Option Number	Feature Code	Tape Drive	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosures
71P9176	71P9145	5355	36/72GB DDS Generation 5 Tape Drive	2....3	-	-	-
			Tape Autoloaders				
-	-	-	-	-	-	-	-
			External Tape Enclosures				
-	45591UX	-	IBM 1U xSeries Tape Enclosure Rack or Tower	-	-	-	-
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-	-	-	-
			External Tape Libraries				
-	-	-	-	-	-	-	-

SBB Number	Option Number	Feature Code	Tape Drive	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosures
-	59P6736	-	160/320GB SDLT Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	45594UX
-	59P6744	-	200/400GB LTO Full-High Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	45594UX
-	25R0012	-	400/800GB LTO Generation 3 SCSI Tape Drive	-	Ultra160	133mm (5.25in) FH	4559FHX 45594UX
			Tape Autoloaders				
-	36232LX	-	LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	SDLT 320 1x8 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
			External Tape Enclosures				
-	45594UX	-	4U Rackmount SCSI Tape Enclosure	-	-	4U Rack	-
-	4559FHX	-	Full-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (4.41in tall)	-
-	45594UX	-	4U Rackmount Tape Enclosure	-	Ultra2 (16-bit)	4U Rack	-
			External Tape Libraries				
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-

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Chapter 14. System x3500

Table 31. System x3500 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
7977-12Y	3.0GHz/2M/ 1066/130W Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6
7977-22Y	3.2GHz/2M/ 667/95W Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6
7977-42Y	1.60GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6
7977-52Y	1.86GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6
7977-62Y	2.0GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6
7977-72Y	2.33GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6
7977-82Y	2.66GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6
7977-92Y	3.0GHz 1333MHz FSB 2x2MB L2 Cache Dual Core Xeon Processor	1 / 2	1GB/ 48GB	5U Tower	1 / 2	P H F	Y	1GB	SAS/ SATA	Hot Swap	0GB/ 2400GB	DVD-ROM (16X)	11 / 10	6 / 6

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Notes:
1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7977-12Y is 7977-12U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.

System x3500 processor options

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
39M4093	25R8926	1230	Dual-Core Intel Xeon Processor 5050 (3.0GHz 667MHz 2x2MB L2 Cache)	12Y
39R8146	25R8912	1231	Dual-Core Intel Xeon Processor 5060 (3.2GHz 1067MHz 2x2MB L2 Cache)	22Y
41Y4257	40K1231	1296	Dual-Core Intel Xeon Processor 5110 (1.60GHz 2x2MB L2 Cache)	42Y
41Y4258	40K1232	1297	Dual-Core Intel Xeon Processor 5120 (1.86GHz 2x2MB L2 Cache)	52Y
41Y4259	40K1233	1298	Dual-Core Intel Xeon Processor 5130 (2.0GHz 2x2MB L2 Cache)	62Y
41Y4260	40K1234	1299	Dual-Core Intel Xeon Processor 5140 (2.33GHz 2x2MB L2 Cache)	72Y
41Y4261	40K1235	1300	Dual-Core Intel Xeon Processor 5150 (2.66GHz 2x2MB L2 Cache)	82Y
41Y4262	40K1236	1301	Dual-Core Intel Xeon Processor 5160 (3.0GHz 2x2MB L2 Cache)	92Y

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
13M7421	13N0694	0346	3.16GHz 667MHz 1M L2 Cache	1RY, E5Y
13M7423	13N0695	0347	3.66GHz 667MHz 1M L2 Cache	2RY, E2Y, E1Y, E5Y, E7Y
31R3775	-	0651	Intel Xeon Processor 7020	3RY
31R3777	-	0652	Intel Xeon Processor 7040	4RY

Notes:
1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
13M7421	13N0694	0346	3.16GHz 667MHz 1M L2 Cache	1RY, E5Y
13M7423	13N0695	0347	3.66GHz 667MHz 1M L2 Cache	2RY, E2Y, E1Y, E5Y, E7Y

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SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
31R3775	-	0651	Intel Xeon Processor 7020	3RY
31R3777	-	0652	Intel Xeon Processor 7040	4RY

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System x3500 memory options

SBB Number	Option Number	Feature Code	Memory Description
			Memory Cards
-	-	-	-
			Memory DIMMs [1]
39M5780	39M5782	0546	512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5783	39M5785	0542	1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5789	39M5791	0544	2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
-	39M5782	-	1GB Kit (2x 512MB DIMM) PC2 5300 DDR2 FBD CL4
-	39M5785	-	2GB Kit (2x1GB DIMM) PC2 5300 DDR2 FBD CL4
-	39M5791	-	4GB Kit (2x 2GB DIMM) PC2 5300 DDR2 FBD CL4

Notes:
1. Pairs are not required to match.

SBB Number	Option Number	Feature code	Memory Description[1, 2]
			Memory Cards
13M7285	13M7409	4219	4-DIMM DDR2 MEMORY CARD[3]
			Memory DIMMs
73P2873		0503	512MB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
73P2874		0504	1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P2866		2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
73P2875		0512	2GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P2867		4GB (2x2GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
30R5147		0535	4GB PC2-3200R DDR2 CL3 ECC SDRAM RDIMM
	30R5145		8 GB (2x4 GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM[4]
Note: To help optimize performance, use 2 memory cards and at least 8 DIMMs.			

Table 32. Standard Memory Configuration

Model	Std. DIMM Configuration
12Y,22Y,42Y, 52Y,62Y,72Y,82Y,92Y	2 x 512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz

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Table 33. 12-DIMM Configuration in non-mirrored mode

Number of DIMMs	DIMM Slots
1	1
2	1, 4
4	1, 4, 7, 10
6	1, 4, 7, 10, 2, 5
8	1, 4, 7, 10, 2, 5, 8, 11
10	1, 4, 7, 10, 2, 5, 8, 11, 3, 6
12	1, 4, 7, 10, 2, 5, 8, 11, 3, 6, 9, 12

Table 34. 12-DIMM Configuration in mirrored mode

Number of DIMMs	DIMM Slots
4	1, 4, 7, 10
8	1, 4, 7, 10, 2, 5, 8, 11
12	1, 4, 7, 10, 2, 5, 8, 11, 3, 6, 9, 12

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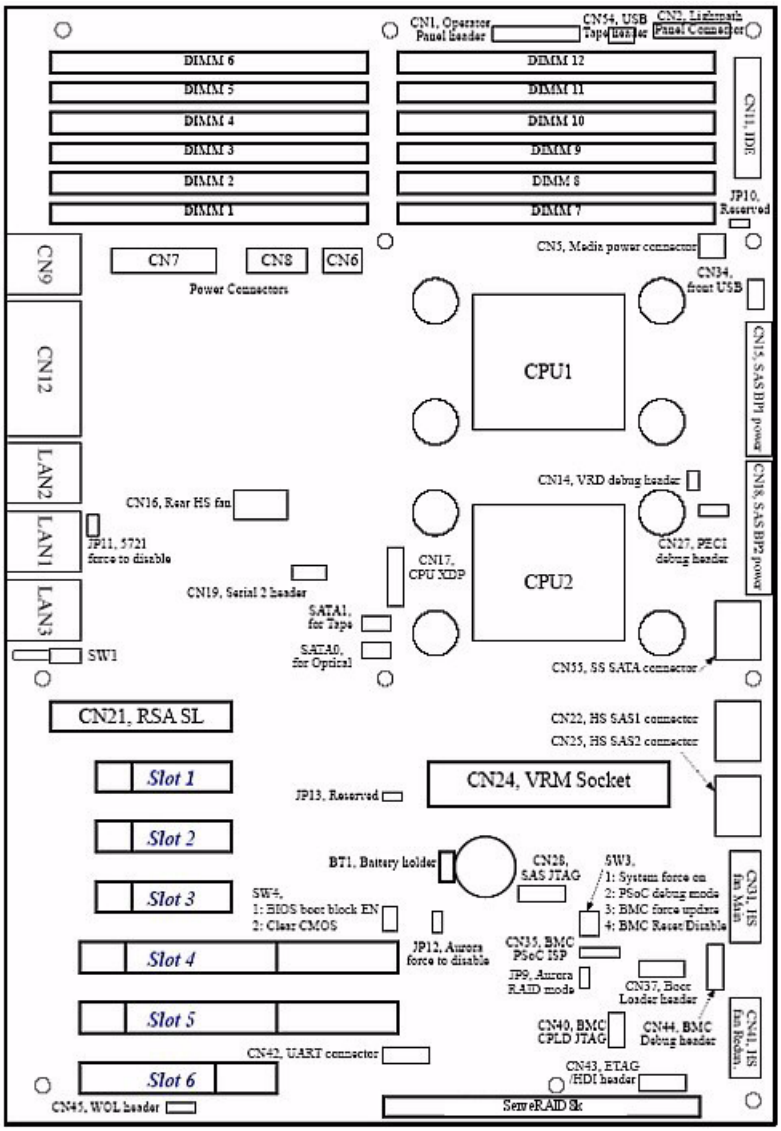

Figure 32. x3500 system board

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System x3500 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
		SATA Hot-Swap HDDs[1]				
39M4519	39M4518	5299	80GB Hot-Swap SATA HDD	SL	4...11	8
39M4523	39M4522	5150	160GB Hot-Swap SATA HDD	SL	4...11	8
39M4527	39M4526	5151	250GB Hot-Swap SATA HDD	SL	4...11	8
		SAS Hot-Swap HDDs[1]				
40K1071	40K1039	5163	73GB 10K 3.5" SAS Hot-Swap HDD	SL	4...11	8
40K1072	40K1040	5164	146GB 10K 3.5" SAS Hot-Swap HDD	SL	4...11	8
40K1073	40K1041	5156	300GB 10K 3.5" SAS Hot-Swap HDD	SL	4...11	8
40K1074	40K1042	5160	36GB 15K 3.5" SAS Hot-Swap HDD	SL	4...11	8
40K1075	40K1043	5161	73GB 15K 3.5" SAS Hot-Swap HDD	SL	4...11	8
40K1076	40K1044	5162	146GB 15K 3.5" SAS Hot-Swap HDD	SL	4...11	8
		Optical Devices				
39M6344	32R2905	4139	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	HH	1, 2	2
39M6345	32R2906	4140	IBM DVD Multi-Burner Plus Drive	HH	1, 2	2

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity
			SAS HDDs			
26K5658	26K5654	5241	36GB 10K 2.5" SAS HDD	SFF	1 ... 6	6
26K5659	26K5655	5242	73GB 10K 2.5" SAS HDD	SFF	1 ... 6	6
			Optical Devices[2]			
26K9996	39R7508	4114	Ultrabay Enhanced DVD-ROM/CD-RW Combo Drive	SFF	7	1
26K9995	-	4113	Ultralight DVD-ROM Ultrabay Enhanced	SFF	7	1
26K9994	-	4112	Ultrabay Enhanced CD-ROM Drive	SFF	7	1
25R7477	-	4111	Ultrabay Enhanced Multiburner Drive	SFF	7	1
			External Storage Expansion Units	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	172260U	-	DS4300 Midrange Disk (60U)	Rack (3U)		

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity
-	17226LU	-	DS4300 Midrange Disk (6LU)	Rack (3U)		
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-		
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-		

Notes:
1. Hot-Swap SAS/SATA HDDs are installed in the order of Bay 11 as standard then Bay 10, 9, 8,7,6,5,4..

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25in)	-	Y	-
2	133 mm (5.25in)	-	Y	-
3	133 mm (5.25in)	-	Y	-
4	89mm (3.5in)	-	Y	HDD
5	89mm (3.5in)	-	Y	HDD
6	89mm (3.5in)	-	Y	HDD
7	89mm (3.5in)	-	Y	HDD
8	89mm (3.5in)	-	Y	HDD
9	89mm (3.5in)	-	Y	HDD
10	89mm (3.5in)	-	Y	HDD
11	89mm (3.5in)	-	Y	HDD

System x3500 I/O options

SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
		Storage Controllers					
25R8077	25R8064	1670	ServeRAID 8k SAS Controller	-	-	ServeRAID	-
39R8752	39R8743	1680	Ultra320 SCSI Controller 2	-	-	-	-
		Networking					
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	Half	32/64-bit	4 ... 6	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	Half	32/64-bit	4 ... 6	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	Half	32/64-bit	4 ... 6	-
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	Half	32/64-bit	4 ... 6	-
39Y6091	39Y6088	1497	NetXtreme 1000 S + Ethernet Adapter	Half	32/64-bit	4 ... 6	-

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
39Y6096	39Y6093	1489	NetXtreme 1000 T + Dual Port Ethernet Adapter	Half	32/64-bit	4 ... 6	-
39Y6101	39Y6098	1486	NetXtreme 1000 Express G Ethernet Adapter	Half	8	1….3	-
		Systems Management					
39Y9567	39Y9566	1605	Remote Supervisor Adapter II Slimline Refresh 1	-	-	RSA SL Socket	-
		Other I/O					
-	-	-	-	-	-	-	-

SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
			Storage Controllers				
02R0996	02R0988	1653	ServeRAID-6M Controller (256MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
02R0995	32P0033	1653	ServeRAID-6M Controller (128MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
13N2232	13N2227	1664	ServeRAID 8i-Controller	Half	64-bit/ 133MHz	Dedicated Slot	-
13N2252	13N2249	1656	Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1 ... 6	-
			External Disk Systems and Options				
24P0963	24P0960	1650	DS400 Host Bus Adapter	Half	64-bit/ 133MHz	1 ... 6	-
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-	-
-	17012RD	-	TotalStorage DS300 - Dual Controller	-	-	-	-
-	172260U	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17226LU	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17226LX	-	DS4300 Midrange Disk (6LX)	-	-	-	-
-	17226XX	-	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-	-
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-	-	-	-
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-	-	-	-

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
-	17421xx	-	TotalStorage DS4400 Midrange Disk System (all models)	-	-	-	-
-	17421RX	-	DS4400 Midrange Disk System	-	-	-	-
-	17241XX	-	TotalStorage DS4100 Midrange Disk System (all models)	-	-	-	-
-	24P82XX	-	TotalStorage DS4300 Model 60U with Turbo	-	-	-	-
-	17429XX	-	TotalStorage DS4500 Midrange Disk System (all models)	-	-	-	-
-	174290X	-	DS4500 Midrange Disk System	-	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-
-	2005H08	-	TotalStorage Fibre Channel Switch H08	-	-	-	-
-	2005H16	-	TotalStorage Fibre Channel Switch H16	-	-	-	-
-	2006L10	-	TotalStorage Storage Switch	-	-	-	-
-	2034212	-	McData 4300 Fabric Switch (12-port)	-	-	-	-
Networking							
31P9605	31P9601	1512	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/ 133MHz	1 ... 6	X
73P4005	73P4001	1509	NetXtreme 1000 SX Fiber Ethernet Adapter 2[3]	Half	64-bit/ 133MHz	1 ... 6	-
73P4105	73P4101	1510	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
73P4205	73P4201	1511	NetXtreme 1000 T Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
-	30R5001	-	10 Gb Ethernet Sr Server Adapter	Half	64-bit/ 266MHz	-	-
Systems Management							
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	-	-	-	-

Slot	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI	Slot Length
PCI Slot 1	PCI-E x 4	-	-	-	-	-	-
PCI Slot 2	PCI-E x 8	-	-	-	-	-	-
PCI Slot 3	PCI-E x 8	-	-	-	-	-	-
PCI Slot 4	PCI-X 64-bit	-	-	133	-	-	-

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Slot	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI	Slot Length
PCI Slot 5	PCI-X 64-bit	-	-	133	-	-	-
PCI Slot 6	PCI-32-bit	-	-	33	-	-	-
RSA SL Socket	-	-	-	-	-	-	-
ServeRAID	-	-	-	-	-	-	-

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System x3500 power and accessories

SBB Number	Option Number	Feature Code	Description
			Power
39Y8326	39Y8487	0942	Redundant Power and Cooling Option
			Power Distribution Units
-	39Y8905	-	DPI NEMA Rack PDU
-	39Y8923	-	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) line cord
-	39Y8935	-	32amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
-	39Y8938	-	30amp/125V Front-end PDU with NEMA L5-30P connector
-	39Y8939	-	30amp/250V Front-end PDU with NEMA L6-30P connector
-	39Y8940	-	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
-	39Y8942	-	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	39Y8945	-	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
-	39Y8948	-	DPIx 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	39Y8951	-	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
			Uninterruptible Power Supply (UPS)
-	2130R31	-	IBM UPS3000XHV 200-240V (US HV cord)
-	21303RX	-	IBM UPS 7500XHV
-	21304RX	-	IBM UPS 10000XHV
-	2130R3X	-	IBM UPS 1000T LV
-	2130R4X	-	IBM UPS 1000T HV
-	2130R5X	-	IBM UPS 1500T LV
-	2130R6X	-	IBM UPS 1500T HV
-	2130R8X	-	IBM UPS 1000T JV
-	2130R9X	-	IBM UPS 1500T JV
-	39Y8857	-	IBM UPS 3U Online Battery Pack

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Option Number	Description
Rack and NetBAY	
93072RX	25U Standard Rack
93074RX	42U Standard Rack
93074XX	42U Standard Rack Extension
93084RX	NetBAY42 Enterprise Rack Cabinet
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
14104RX	Linux Cluster Rack
39M2895	USB Conversion Option
39M2896	Short KVM Conversion Option
39M2897	Long KVM Conversion Option
Rack/Tower Conversion Kits	
39Y8382	5Ux26D Tower to Rack Conversion Kit
Console Connectivity	
17351GX	2x8 Local Console Manager
17351LX	1x8 Local Console Manager
17352GX	Global 2x16 Console Manager
17352LX	2x16 Local Console Manager
17354GX	Global 4x16 Console Manager
1735L04	NetBAY Local Console Manager
1735R16	NetBAY Remote Console Manager
Monitors	
4938-7xx	C117 17" (15.9inch VIS) FST CRT
4942-15x	T115 15" TFT LCD
4943-17x	T117 17" TFT LCD
Keyboard and Mouse	
40K5372	Keyboard with Integrated Pointing Device - 3m Cable - Black - USB - US English
40K9584	Preferred Pro Keyboard- Full Width - 2m Cable - Black - USB - US English
40K9200	2 Button Optical Wheel Mouse - Black - USB
40K9201	3 Button Optical Mouse - Black - USB

SBB Number	Option Number	Feature Code	Description
Rack and NetBAY			
-	-	-	Refer to Rack Cabinets and Options section for information concerning IBM racks and rack-supported devices.
Console Connectivity[1]			
-	17351LX	-	1x8 Local Console Manager

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SBB Number	Option Number	Feature Code	Description
-	17352LX	-	2x16 Local Console Manager
-	17354GX	-	4x16 Global Console Manager
			Monitors
-	90P0717	-	L150p 15in business black flat panel LCD monitor
-	90P0726	-	C170 17in (16in viewable image) CRT business black full flat screen shadow mask monitor
			Keyboard and Mouse[2]
02R3206	25R6968	8800	Preferred Pro Full-size Keyboard - 104 Keys, business black[3]
-	90P0777	-	USB Keyboard Enhanced Performance Keyboard - US English
-	73P3144	-	PS/2 Keyboard with UltraNav
13M7124	90P0743	8908	USB Optical Wheel Mouse
-	90P0742	-	Optical 3-button ScrollPoint Mouse - 800dpi - PS/2 & USB (Business Black)
			Other Accessories
-	-	-	-

System x3500 tape options

SBB Number	Option Number	SBB Number	Tape Drive	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosures
39M5624	25R0045	5362	VXA 3 Half High Internal Back-up	2, 3	-	89mm (3.5in) SL or 133mm (5.25in) HH	-
			Tape Autoloaders				
-	-	-	-	-	-	-	-
			External Tape Enclosures				
-	45591UX	-	IBM 1U xSeries Tape Enclosure Rack or Tower	-	-	-	-
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-	-	-	-
			External Tape Libraries				
-	-	-	-	-	-	-	-

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SBB Number	Option Number	Feature Code	Tape Drive	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosures
-	59P6736	-	160/320GB SDLT Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	45594UX
-	59P6744	-	200/400GB LTO Full-High Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	45594UX
-	25R0012	-	400/800GB LTO Generation 3 SCSI Tape Drive	-	Ultra160	133mm (5.25in) FH	4559FHX 45594UX
Tape Autoloaders							
-	36232LX	-	LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	SDLT 320 1x8 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
External Tape Enclosures							
-	45594UX	-	4U Rackmount SCSI Tape Enclosure	-	-	4U Rack	-
-	4559FHX	-	Full-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (4.41in tall)	-
-	45594UX	-	4U Rackmount Tape Enclosure	-	Ultra2 (16-bit)	4U Rack	-
External Tape Libraries							
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-

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Chapter 15. System x3550

Table 35. System x3550 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
7978-G5Y	3.00/667 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB/ 500GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-G6Y	3.00/667 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P F	-	Dual 1Gb	SATA	Simple-swap	0GB/ 500GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-45Y	3.73/ 1066FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB/ 600GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-4SY	3.73/ 1066 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB/ 293.6GB	CD-RW/DVD Combo V Ultrabay Enhanced	5 / 5	2 / 2
7978-21Y	1.60/1066 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB/ 600GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-22Y	1.60/1066 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P F	-	Dual 1Gb	SATA	Simple-swap	0GB / 500GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-31Y	1.86/1066 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB/ 600GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-32Y	1.86/1066 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P F	-	Dual 1Gb	SATA	Simple-swap	0GB / 500GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-3AY	1.86/1066 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB/ 293.6GB	CD-RW/DVD Combo V Ultrabay Enhanced	5 / 5	2 / 2

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Table 35. System x3550 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
7978-41Y	2.00/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB/ 600GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-42Y	2.00/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB / 16GB	Rack (1U)	1 / 2	P F	-	Dual 1Gb	SATA	Simple-swap	0GB / 500GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-4AY	2.00/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Simple-swap	0GB/ 500GB	CD-RW/DVD Combo V Ultrabay Enhanced	5 / 5	2 / 2
7978-51Y	2.33/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB / 600GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-5AY	2.33/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB / 293.6GB	CD-RW/DVD Combo V Ultrabay Enhanced	5 / 5	2 / 2
7978-61Y	2.66/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB / 600GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-6AY	2.66/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB / 293.6GB	CD-RW/DVD Combo V Ultrabay Enhanced	5 / 5	2 / 2
7978-71Y	3.00/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB / 600GB	CD-RW/DVD Combo V Ultrabay Enhanced	3 / 3	2 / 2
7978-7AY	3.00/1333 FSB 2x2MB L2 Cache Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 2	P H F	-	Dual 1Gb	SAS	Hot-Swap	0GB / 293.6GB	CD-RW/DVD Combo V Ultrabay Enhanced	5 / 5	2 / 2

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7978-71Y is 7978-71U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.

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System x3550 processor options

SBB Number	Option Number	Feature Code	Initial Processor[1]	SMP Support
32R2790	25R8924	0643	Xeon Processor 5080 3.73GHz 1066MHz FSB 2x2MB L2 Cache Dual Core Processor	-
32R2793	25R8921	0646	Xeon Processor 5050 3.00GHz 667MHz FSB 2x2MB L2 Cache Dual Core Processor	-
42C4213	40K1242	1305	Dual-Core Intel Xeon Processor 5160 (3.0GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	-
42C4215	40K1241	1306	Dual-Core Intel Xeon Processor 5150 (2.66GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	-
42C4217	40K1240	1307	Dual-Core Intel Xeon Processor 5140 (2.33GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	-
42C4219	40K1239	1308	Dual-Core Intel Xeon Processor 5130 (2.0GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	-
42C4221	40K1238	1309	Dual-Core Intel Xeon Processor 5120 (1.86GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	-
42C4223	40K1237	1310	Dual-Core Intel Xeon Processor 5110 (1.60GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	-

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
13M7421	13N0694	0346	3.16GHz 667MHz 1M L2 Cache	1RY, E5Y
13M7423	13N0695	0347	3.66GHz 667MHz 1M L2 Cache	2RY, E2Y, E1Y, E5Y, E7Y
31R3775	-	0651	Intel Xeon Processor 7020	3RY
31R3777	-	0652	Intel Xeon Processor 7040	4RY

Notes:
1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
13M7421	13N0694	0346	3.16GHz 667MHz 1M L2 Cache	1RY, E5Y
13M7423	13N0695	0347	3.66GHz 667MHz 1M L2 Cache	2RY, E2Y, E1Y, E5Y, E7Y
31R3775	-	0651	Intel Xeon Processor 7020	3RY
31R3777	-	0652	Intel Xeon Processor 7040	4RY

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System x3550 memory options

SBB Number	Option Number	Feature Code	Memory Description
		Memory DIMMs	
39M5780	-	0546	512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5783	-	0542	1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5789	-	0544	2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5795	-	0556	4GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
-	39M5782	-	1GB (2x512MB DIMM) PC2-5300 ECC DDR2 FBDIMM Kit
-	39M5785	-	2GB (2x1GB DIMM) PC2-5300 ECC DDR2 FBDIMM Kit
-	39M5791	-	4GB (2x2GB DIMM) PC2-5300 ECC DDR2 FBDIMM Kit
-	39M5797	-	8GB (2x4GB DIMM) PC2-5300 ECC DDR2 FBDIMM Kit

SBB Number	Option Number	Feature code	Memory Description[1, 2]
			Memory Cards
13M7285	13M7409	4219	4-DIMM DDR2 MEMORY CARD[3]
			Memory DIMMs
73P2873		0503	512MB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
73P2874		0504	1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P2866		2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
73P2875		0512	2GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
	73P2867		4GB (2x2GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
30R5147		0535	4GB PC2-3200R DDR2 CL3 ECC SDRAM RDIMM
	30R5145		8 GB (2x4 GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM[4]
Note: To help optimize performance, use 2 memory cards and at least 8 DIMMs.			

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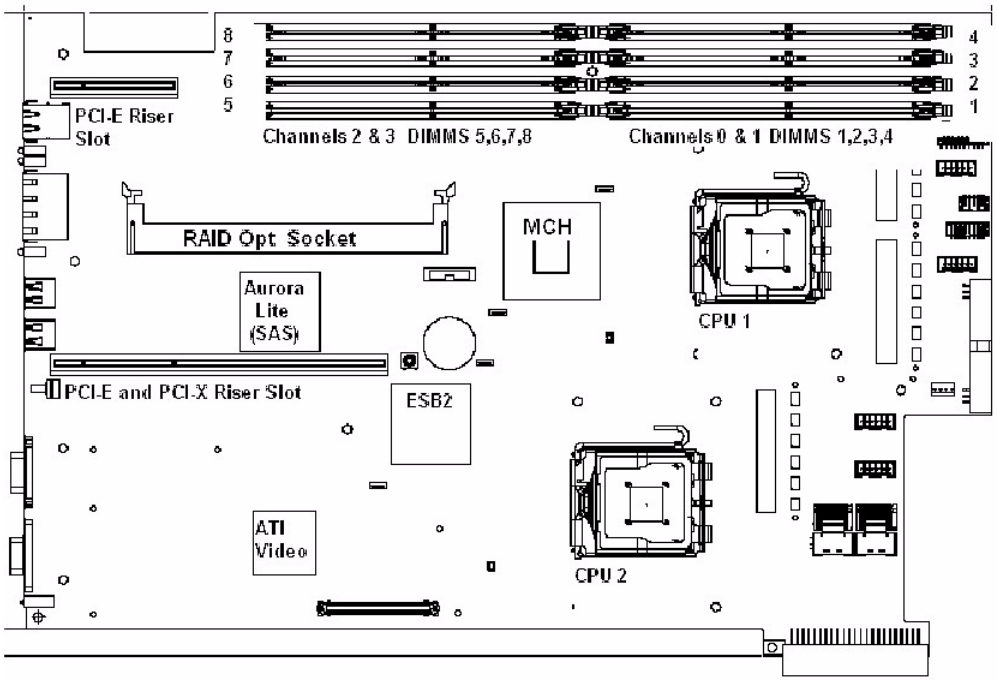

Figure 33. x3550 system board

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System x3550 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
SATA Hot-Swap HDDs[1]						
39M4519	39M4518	5299	80GB Hot-Swap SATA HDD	SL	1, 2	2
39M4523	39M4522	5150	160GB Hot-Swap SATA HDD	SL	1, 2	2
39M4527	39M4526	5151	250GB Hot-Swap SATA HDD	SL	1, 2	2
SATA Simple-Swap HDDs						
39M4501	39M4500	5290	80GB 7200 RPM 3.5" Simple-Swap SATA HDD	SATA	1, 2	2
39M4505	39M4504	5291	160GB 7200 RPM 3.5" Simple-Swap SATA HDD	SATA	1, 2	2
39M4509	39M4508	5292	250GB 7200 RPM 3.5" Simple-Swap SATA HDD	SATA	1, 2	2
SAS Hot-Swap HDDs[1]						
40K1071	40K1039	5163	73GB 10K 3.5" SAS Hot-Swap HDD	SL	1, 2	2
40K1072	40K1040	5164	146GB 10K 3.5" SAS Hot-Swap HDD	SL	1, 2	2
40K1073	40K1041	5156	300GB 10K 3.5" SAS Hot-Swap HDD	SL	1, 2	2
40K1074	40K1042	5160	36GB 15K 3.5" SAS Hot-Swap HDD	SL	1, 2	2
40K1075	40K1043	5161	73GB 15K 3.5" SAS Hot-Swap HDD	SL	1, 2	2
40K1076	40K1044	5162	146GB 15K 3.5" SAS Hot-Swap HDD	SL	1, 2	2
40K1083	40K1051	5158	36GB 10K 2.5" SAS Hot-Swap HDD	SFF	1, 2	4
40K1084	40K1052	5159	73GB 10K 2.5" SAS Hot-Swap HDD	SFF	1, 2	4
Optical Devices						
32R2784	39R7508	4144	Thinkpad 24x/24x CD-RW/DVD Combo V Ultrabay Enhanced	-	-	-
32R2899	32R2899	4141	CDROM Ultrabay Enhanced Drive	-	-	-
32R2901	32R2901	4143	Multi-Burner Ultrabay Enhanced Drive	-	-	-

			External Storage Expansion Units[4]	**Form Factor**
-	17241xx	-	IBM TotalStorage DS4100 Midrange Disk System (all models)	3U
-	17421xx	-	IBM TotalStorage DS4400 Midrange Disk System (all models)	3U
-	17429xx	-	IBM TotalStorage DS4500 Midrange Disk System (all models)	4U
-	1750-511	-	IBM TotalStorage DS6800 1750 model 511	3U
-	2107-921	-	IBM TotalStorage DS8100 2107 model 921	3U
-	2107-922/ 9A2	-	IBM TotalStorage DS8300 2107 model 922/9A2	3U
-	5198-001	-	IBM TotalStorage Enterprise NAS Gateway 500	4U

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity
SAS HDDs						
26K5658	26K5654	5241	36GB 10K 2.5" SAS HDD	SFF	1 ... 6	6
26K5659	26K5655	5242	73GB 10K 2.5" SAS HDD	SFF	1 ... 6	6
Optical Devices[2]						
26K9996	39R7508	4114	Ultrabay Enhanced DVD-ROM/CD-RW Combo Drive	SFF	7	1
26K9995	-	4113	Ultralight DVD-ROM Ultrabay Enhanced	SFF	7	1
26K9994	-	4112	Ultrabay Enhanced CD-ROM Drive	SFF	7	1
25R7477	-	4111	Ultrabay Enhanced Multiburner Drive	SFF	7	1
			External Storage Expansion Units	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	172260U	-	DS4300 Midrange Disk (60U)	Rack (3U)		
-	17226LU	-	DS4300 Midrange Disk (6LU)	Rack (3U)		
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-		
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-		

Notes:
1. Hot-Swap SAS/SATA HDDs are installed in the order of Bay 11 as standard then Bay 10, 9, 8,7,6,5,4..

Bay	Form Factor	Height	Front Access	Usage
1	[3.5in SAS or SATA HDD Models] or [2.5in SAS HDD Models]	SSL/SFF	Y	HDD
2	[3.5in SAS or SATA HDD Models] or [2.5in SAS HDD Models]	SSL/SFF	Y	HDD
3	2.5in SAS HDD Models	SFF	Y	HDD
4	2.5in SAS HDD Models	SFF	Y	HDD
5	DVD-ROM or CD-ROM	SL	Y	CD

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System x3550 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
			Storage Controllers				
25R8077	25R8064	1670	ServeRAID 8k SAS Controller[1]	-	-	-	1
			Networking				
39Y6071	39Y6066	1484	NetXtreme II 1000 Express Ethernet Adapter	-	-	-	-
39Y6129	39Y6126	2944	PRO/1000 PT Dual Port Server Adapter by Intel	-	-	-	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	2	Y
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	Half	64-bit/ 133MHz	2	Y
39Y6101	39Y6098	1486	NetXtreme 1000 Express G Ethernet Adapter[2]	Half	PCI E 1X	1, 2	Y
39Y6071	39Y6066	1485	NetXtreme II 1000 Express G Ethernet Adapter[2]	Half	PCI E 1X	1, 2	Y
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	Half	64-bit/ 133MHz	2	Y
39Y6091	39Y6088	1487	NetXtreme 1000 S + Ethernet Adapter	Half	64-bit/ 133MHz	2	Y
39Y6096	39Y6093	1489	NetXtreme 1000 T + Dual Port Ethernet Adapter	Half	64-bit/ 133MHz	2	Y
39Y6108	39Y6105	1488	PRO/1000 GT Server Adapter by Intel	Half	64-bit/ 133MHz	2	Y
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	Half	64-bit/ 133MHz	2	Y
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	Half	64-bit/ 133MHz	2	Y
			System Management				
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	Half	-	-	-
			Other I/O				
32R2798	32R2816	4288	PCI-X riser card for 1U Systems[2]	-	-	-	-

Notes:
1. The ServeRAID 8k SAS Controller comes standard and provides Raid 0, 1 and 10.
2. A PCI-X Riser Card must be selected when a PCI-X adapter is selected.

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
Storage Controllers							
02R0996	02R0988	1653	ServeRAID-6M Controller (256MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
02R0995	32P0033	1653	ServeRAID-6M Controller (128MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
13N2232	13N2227	1664	ServeRAID 8i-Controller	Half	64-bit/ 133MHz	Dedicated Slot	-
13N2252	13N2249	1656	Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1 ... 6	-
External Disk Systems and Options							
24P0963	24P0960	1650	DS400 Host Bus Adapter	Half	64-bit/ 133MHz	1 ... 6	-
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-	-
-	17012RD	-	TotalStorage DS300 - Dual Controller	-	-	-	-
-	172260U	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17226LU	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17226LX	-	DS4300 Midrange Disk (6LX)	-	-	-	-
-	17226XX	-	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-	-
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-	-	-	-
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-	-	-	-
-	17421xx	-	TotalStorage DS4400 Midrange Disk System (all models)	-	-	-	-
-	17421RX	-	DS4400 Midrange Disk System	-	-	-	-
-	17241XX	-	TotalStorage DS4100 Midrange Disk System (all models)	-	-	-	-
-	24P82XX	-	TotalStorage DS4300 Model 60U with Turbo	-	-	-	-
-	17429XX	-	TotalStorage DS4500 Midrange Disk System (all models)	-	-	-	-
-	174290X	-	DS4500 Midrange Disk System	-	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
-	2005H08	-	TotalStorage Fibre Channel Switch H08	-	-	-	-
-	2005H16	-	TotalStorage Fibre Channel Switch H16	-	-	-	-
-	2006L10	-	TotalStorage Storage Switch	-	-	-	-
-	2034212	-	McData 4300 Fabric Switch (12-port)	-	-	-	-
Networking							
31P9605	31P9601	1512	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/ 133MHz	1 ... 6	X
73P4005	73P4001	1509	NetXtreme 1000 SX Fiber Ethernet Adapter 2[3]	Half	64-bit/ 133MHz	1 ... 6	-
73P4105	73P4101	1510	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
73P4205	73P4201	1511	NetXtreme 1000 T Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
-	30R5001	-	10 Gb Ethernet Sr Server Adapter	Half	64-bit/ 266MHz	-	-
Systems Management							
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	-	-	-	-

Slot	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI	Slot Length
PCI Slot 1	PCI-E	-	-	x8	-	-	HL / FH
PCI Slot 2	PCI-X or PCI-E	A	-	133	64	-	HL / FH

System x3550 power and accessories

SBB Number	Option Number	Feature Code	Description
Power[1]			
32R2810	32R2815	1964	670w Power Supply[2]
Power Distribution Units[2]			
-	39Y8941	-	DPI 32A Single Phase C13 Enterprise PDU w/o line cord
-	26K4245	-	DPI 32A Three Phase C13 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
-	39Y8950	-	DPI 32A Three Phase C19 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
-	39Y8948	-	DPI 60A Single Phase C19 Enterprise PDU w/o line cord

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SBB Number	Option Number	Feature Code	Description
-	39Y8923	-	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) fixed line cord
-	26K4243	-	DPI 63A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4257	-	DPI 63A Single Phase C19 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	39Y8905	-	DPI NEMA Rack PDU
-	39Y8951	-	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
-	39Y8938	-	30amp/125V Front-end PDU with NEMA L5-30P connector
-	39Y8939	-	30amp/250V Front-end PDU with NEMA L6-30P connector
-	39Y8999	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
-	39Y8935	-	32amp/250V Front-end PDU with IEC 309 32A 2P+Gnd connector
-	39Y9000	-	60A/208V 3P w/IEC309 3P+Gnd Conn
-	39Y8940	-	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
Uninterruptible Power Supply (UPS)[2]			
-	21304RX	-	IBM UPS 10000XHV
-	2130R6X	-	IBM UPS 1500T HV
-	39Y8857	-	IBM UPS 3U Online Battery Pack
-	32P1692	-	IBM UPS Extend Run Battery Pack
-	2130R31	-	IBM UPS3000XHV 200-240V (US HV cord)

Notes:
1. System x3500 ships with a single 670w hot-swap capable power supply, a rack power cable and line cord. A second hot-swap power supply is optional for redundancy.
2. The power supply ships with a single 2.8m rack power Y-cable which replaces the system's standard power cable. When used in conjunction with multiple 7978s, the Y-cable is designed to be split between 7978s. Therefore, the number of PDU outlets used is reduced and a certain level of redundancy is provided.

Option Number	Description
Rack and NetBAY	
93072RX	IBM 25U Standard Rack
93074RX	IBM 42U Standard Rack
93074XX	IBM 42U Standard Rack Extension
141042X	IBM Linux Cluster Rack
93061RX	NetBAY11 Standard Rack Cabinet
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
93084RX	NetBAY42 Enterprise Rack Cabinet
Rack Console Connectivity	
17352LX	IBM 2x16 Local Console Manager
17351GX	IBM 2x8 Local Console Manager
17351LX	IBM 1x8 Local Console Manager

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Option Number	Description
17352GX	IBM Global 2x16 Console Manager
17354GX	IBM Global 4x16 Console Manager
17231RX	IBM 1U 17" Flat Panel Console Kit w/ Optical Drive Bay
39M2897	IBM Long KVM Conversion Option
39M2896	IBM Short KVM Conversion Option
39M2895	IBM USB Conversion Option
39M2894	IBM Virtual Media Conversion Option
Monitors	
4938-7xx	IBM C117 17" (15.9inch VIS) FST CRT
Keyboard and Mouse	
40K9200	IBM 2 Button Optical Wheel Mouse - Black - USB
40K9201	IBM 3 Button Optical Mouse - Black - USB
40K9584	IBM Preferred Pro Keyboard- Full Width - 2m Cable - Black - USB - US English
42C0030	IBM Keyboard with Integrated Pointing Device - 3m Cable - Black - PS/2 - US English
40K5372	IBM Keyboard with Integrated Pointing Device - 3m Cable - Black - USB - US English

SBB Number	Option Number	Feature Code	Description
Rack and NetBAY			
-	-	-	Refer to Rack Cabinets and Options section for information concerning IBM racks and rack-supported devices.
Console Connectivity[1]			
-	17351LX	-	1x8 Local Console Manager
-	17352LX	-	2x16 Local Console Manager
-	17354GX	-	4x16 Global Console Manager
Monitors			
-	90P0717	-	L150p 15in business black flat panel LCD monitor
-	90P0726	-	C170 17in (16in viewable image) CRT business black full flat screen shadow mask monitor
Keyboard and Mouse[2]			
02R3206	25R6968	8800	Preferred Pro Full-size Keyboard - 104 Keys, business black[3]
-	90P0777	-	USB Keyboard Enhanced Performance Keyboard - US English
-	73P3144	-	PS/2 Keyboard with UltraNav
13M7124	90P0743	8908	USB Optical Wheel Mouse
-	90P0742	-	Optical 3-button ScrollPoint Mouse - 800dpi - PS/2 & USB (Business Black)
Other Accessories			
-	-	-	-

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System x3550 tape options

Option Number	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosure
Tape Autoloaders					
87691VX	1U VXA-320 Tape Autoloader	-	Ultra160 SCSI LVD	1U	-
33622LX	IBM LTO3 2U Autoloader	-	-	2U	-
External Tape Libraries					
45591UX	NetBay 1U xSeries Tape Enclosure	-	Ultra160 (16-bit)	1U Rack	-
45594UX	4U Rackmount SCSI Tape Enclosure	-	Ultra2 (16-bit)	4U Rack	-
4559HHX	Half-High Tape Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (2.52in tall)	-
87651UX	IBM 1U Rackmount Tape Enclosure	-	-	1U Rack	-

SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
Storage Controllers							
02R0996	02R0988	1653	ServeRAID-6M Controller (256MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
02R0995	32P0033	1653	ServeRAID-6M Controller (128MB Cache)[2]	Full	64-bit/ 133MHz	1 ... 6	-
13N2232	13N2227	1664	ServeRAID 8i-Controller	Half	64-bit/ 133MHz	Dedicated Slot	-
13N2252	13N2249	1656	Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1 ... 6	-
External Disk Systems and Options							
24P0963	24P0960	1650	DS400 Host Bus Adapter	Half	64-bit/ 133MHz	1 ... 6	-
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-	-
-	17012RD	-	TotalStorage DS300 - Dual Controller	-	-	-	-
-	172260U	-	DS4300 Midrange Disk (60U)	-	-	-	-

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable[1]
-	17226LU	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17226LX	-	DS4300 Midrange Disk (6LX)	-	-	-	-
-	17226XX	-	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-	-
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-	-	-	-
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-	-	-	-
-	17421xx	-	TotalStorage DS4400 Midrange Disk System (all models)	-	-	-	-
-	17421RX	-	DS4400 Midrange Disk System	-	-	-	-
-	17241XX	-	TotalStorage DS4100 Midrange Disk System (all models)	-	-	-	-
-	24P82XX	-	TotalStorage DS4300 Model 60U with Turbo	-	-	-	-
-	17429XX	-	TotalStorage DS4500 Midrange Disk System (all models)	-	-	-	-
-	174290X	-	DS4500 Midrange Disk System	-	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-
-	2005H08	-	TotalStorage Fibre Channel Switch H08	-	-	-	-
-	2005H16	-	TotalStorage Fibre Channel Switch H16	-	-	-	-
-	2006L10	-	TotalStorage Storage Switch	-	-	-	-
-	2034212	-	McData 4300 Fabric Switch (12-port)	-	-	-	-
Networking							
31P9605	31P9601	1512	PRO/1000 MT Server Ethernet Adapter by Intel	Half	64-bit/ 133MHz	1 ... 6	X
73P4005	73P4001	1509	NetXtreme 1000 SX Fiber Ethernet Adapter 2[3]	Half	64-bit/ 133MHz	1 ... 6	-
73P4105	73P4101	1510	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
73P4205	73P4201	1511	NetXtreme 1000 T Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
-	30R5001	-	10 Gb Ethernet Sr Server Adapter	Half	64-bit/ 266MHz	-	-
Systems Management							
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	-	-	-	-

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Chapter 16. System x3650

Table 36. System x3650 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
7979-G5Y	3.0/667 95W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB	CD-RW/DVD Combo	6/6	4/4
7979-GSY	3.0/667 95W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/584GB	CD-RW/DVD Combo	8/8	4/4
7979-H5Y	3.2/1066 95W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB	CD-RW/DVD Combo	6/6	4/4
7979-HSY	3.2/1066 95W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/584GB	CD-RW/DVD Combo	8/8	4/4
7979-21Y	1.60/1066 80W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB (3.5")	CD-RW/DVD Combo	6/6	4/4
7979-2AY	1.60/1066 80W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/584GB (2.5")	CD-RW/DVD Combo	8/8	4/4
7979-31Y	1.86/1066 80W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB (3.5")	CD-RW/DVD Combo	6/6	4/4
7979-3AY	1.86/1066 80W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/584GB (2.5")	CD-RW/DVD Combo	8/8	4/4
7979-41Y	2.0/1333 80W/4ML2 Dual Core	1/2	1GB/48GB	Rack (2U)	1/2	PHF	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB (3.5")	CD-RW/DVD Combo	6/6	4/4

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Table 36. System x3650 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz)-Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
7979-4AY	2.0/1333 80W/4ML2 Dual Core	1 / 2	1GB/ 48GB	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	SAS	Hot-Swap	0/584GB (2.5")	CD-RW/ DVD Combo	8 / 8	4 / 4
7979-51Y	2.33/1333 80W/4ML2 Dual Core	1 / 2	1GB/ 48GB	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB (3.5")	CD-RW/ DVD Combo	6 / 6	4 / 4
7979-5AY	2.33/1333 80W/4ML2 Dual Core	1 / 2	1GB/ 48GB	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	SAS	Hot-Swap	0/584GB (2.5")	CD-RW/ DVD Combo	8 / 8	4 / 4
7979-61Y	2.66/1333 80W/4ML2 Dual Core	1 / 2	1GB/ 48GB	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB (3.5")	CD-RW/ DVD Combo	6 / 6	4 / 4
7979-6AY	2.66/1333 80W/4ML2 Dual Core	1 / 2	1GB/ 48GB	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	SAS	Hot-Swap	0/584GB (2.5")	CD-RW/ DVD Combo	8 / 8	4 / 4
7979-71Y	3.0/1333 80W/4ML2 Dual Core	1 / 2	1GB/ 48GB	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	SAS	Hot-Swap	0/1800GB (3.5")	CD-RW/ DVD Combo	6 / 6	4 / 4
7979-7AY	3.0/1333 80W/4ML2 Dual Core	1 / 2	1GB/ 48GB	Rack (2U)	1 / 2	P H F	Y	Dual 1GB	SAS	Hot-Swap	0/584GB (2.5")	CD-RW/ DVD Combo	8 / 8	4 / 4

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7979-12Y is 7979-12U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.

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System x3650 processor options

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
40K0020	25R8927	0684	Dual-Core Intel Xeon Processor 5063 - 3.2GHz 2x2MB L2 Cache	H5Y, HSY
40K0022	25R8926	0686	Dual-Core Intel Xeon Processor 5050 - 3.0GHz 2x2MB L2 Cache	G5Y, GSY,
41Y8978	40K1237	1322	Dual-Core Intel Xeon Processor 5110 - 1.60GHz 2x2MB L2 Cache	21Y, 2AY
41Y8979	40K1238	1323	Dual-Core Intel Xeon Processor 5120 - 1.86GHz 2x2MB L2 Cache	31Y, 3AY
41Y8980	40K1239	1324	Dual-Core Intel Xeon Processor 5130 - 2.0GHz 2x2MB L2 Cache	41Y, 4AY
41Y8981	40K1240	1325	Dual-Core Intel Xeon Processor 5140 - 2.33GHz 2x2MB L2 Cache	51Y, 5AY
41Y8982	40K1241	1326	Dual-Core Intel Xeon Processor 5150 - 2.66GHz 2x2MB L2 Cache	61Y, 6AY
41Y8983	40K1242	1327	Dual-Core Intel Xeon Processor 5160 - 3.0GHz 2x2MB L2 Cache	71Y, 7AY
40K0021	25R8927	0475	Additional Dual-Core Intel Xeon Processor 5063 - 3.2GHz 2x2M L2 Cache Dual-Core Xeon Processor)	H5Y, HSY
40K0023	25R8926	0473	Additional Dual-Core Intel Xeon Processor 5050 (3.0GHz 2x2M L2 Cache Dual-Core Xeon Processor)	G5Y, GSY,
41Y4263	40K1231	1380	Additional Dual-Core Intel Xeon Processor 5110 - 1.60GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	21Y, 2AY
41Y4264	40K1232	1381	Additional Dual-Core Intel Xeon Processor 5120 - 1.86GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	31Y, 3AY
41Y4265	40K1233	1382	Additional Dual-Core Intel Xeon Processor 5130 - 2.0GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	41Y, 4AY
41Y4266	40K1234	1383	Additional Dual-Core Intel Xeon Processor 5140 - 2.33GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	51Y, 5AY
41Y4267	40K1235	1384	Additional Dual-Core Intel Xeon Processor 5150 - 2.66GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	61Y, 6AY
41Y4268	40K1236	1385	Additional Dual-Core Intel Xeon Processor 5160 - 3.0GHz 2x2MB L2 Cache Dual-Core Xeon Processor)	71Y, 7AY

Notes:

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

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System x3650 memory options

SBB Number	Option Number	Feature Code	Memory Description
			Memory DIMMs [1]
39M5780	-	0546	512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5783	-	0542	1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
39M5789	-	0545	2 GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
-	39M5782	-	1 GB (2 x 512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz)
-	39M5785	-	2GB kit (2 x1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz)
-	39M5791	-	4GB kit (2 x 2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz)

Notes:
1. A minimum of one DIMM is required. However, for performance, a minimum of two identical DIMMs should be populated. Pairs must always match.

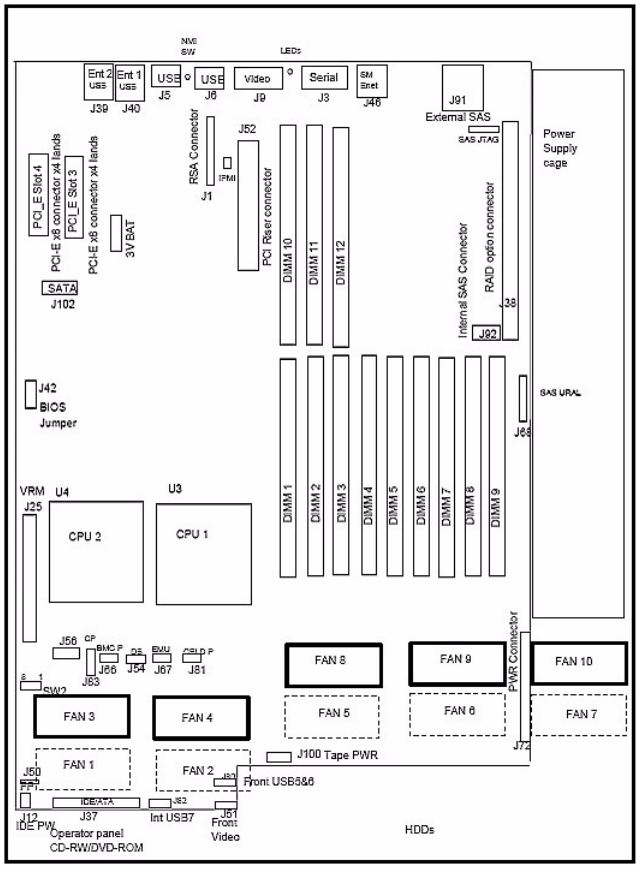

Figure 34. x3650 system board

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System x3650 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
SAS Hot-Swap HDDs[1]						
40K1071	40K1039	5163	73GB 10K 3.5" SAS Hot-Swap HDD	3.5"	1..6	6
40K1072	40K1040	5164	146GB 10K 3.5" SAS Hot-Swap HDD	3.5"	1..6	6
40K1073	40K1041	5156	300GB 10K 3.5" SAS Hot-Swap HDD	3.5"	1..6	6
40K1074	40K1042	5160	36GB 15K 3.5" SAS Hot-Swap HDD	3.5"	1..6	6
40K1075	40K1043	5161	73GB 15K 3.5" SAS Hot-Swap HDD	3.5"	1..6	6
40K1076	40K1044	5162	146GB 15K 3.5" SAS Hot-Swap HDD	3.5"	1..6	6
40K1083	40K1051	5158	36GB 10K 2.5" SAS Hot-Swap HDD	2.5"	1..8	8
40K1084	40K1052	5159	73GB 10K 2.5" SAS Hot-Swap HDD	2.5"	1..8	8
Optical Devices						
-	-	-	-	-	-	-

System x3650 I/O options

SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
Storage Controllers							
25R8077	25R8064	1670	IBM ServeRAID 8k SAS Controller	-	-	-	-
25R8080	25R8065	1671	IBM ServeRAID 8k-l SAS Controller[1]	-	-	-	-
Networking							
39Y6071	39Y6066	1484	NetXtreme II 1000 Express Ethernet Adapter	-	-	-	-
39Y6129	39Y6126	2944	PRO/1000 PT Dual Port Server Adapter by Intel	-	-	-	-
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	-	-	-	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	-	-	-	-
39Y6071	39Y6066	1485	NetXtreme II 1000 Express G Ethernet Adapter	-	-	-	-
39Y6082	39Y6079	1478	NetXtreme 1000 T + Ethernet Adapter	-	-	-	-
39Y6091	39Y6088	1487	NetXtreme 1000 S + Ethernet Adapter	-	-	-	-
39Y6096	39Y6093	1489	NetXtreme 1000 T + Dual Port Ethernet Adapter	-	-	-	-

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SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
39Y6101	39Y6098	1486	NetXtreme 1000 Express G Ethernet Adapter	-	-	-	-
39Y6108	39Y6105	1488	PRO/1000 GT Server Adapter by Intel	-	-	-	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	-	-	-	-
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	-	-	-	-
System Management							
39Y9567	39Y9566	1605	Remote Supervisor Adapter II Slimline Refresh 1	Half	-	-	-
Other I/O							
40K0032	40K1908	4316	PCI/PCI Express Adapter [1]	-	-	-	-
40K0028	40K1907	4334	PCI Express Card[2]	-	-	-	-

Notes:
1. A PCI-X riser is required when installing a PCI-X adapter in either slot 1 or slot 2.
2. A PCI-E riser is required when installing a PCI-Express adapter in either slot 1 or slot 2.

Slot	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI	Slot Length
PCI Slot 1[1]	PCI / PCI-X / PCI-E Full-size, Full-length	1A	3V	133MHz	64-bit	No	Full
PCI Slot 2[1]	PCI / PCI-X / PCI-E Full-size, Half-length	24	3V	133MHz	64-bit	No	Half
PCI Slot 3[2]	PCI-Express (low profile)	6	-	-	-	No	Half
PCI Slot 4[2]	PCI-Express (low profile)	16	-	-	-	No	Half

Notes:
1. Slots 1 and 2 required a riser compatible to the adapter being installed.
2. Slots 3 and 4 are low-profile (2U) PCI-E slots that do not require a riser.

System x3650 power and accessories

SBB Number	Option Number	Option Number	Description
Power[1]			
40K0029	40K1905	1968	x3650 Redundant Power Supply 835 W
Power Distribution Units			
-	39Y8938	-	30amp/125V Front-end PDU with NEMA L5-30P connector

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SBB Number	Option Number	Option Number	Description
-	39Y8999	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
-	39Y9000	-	60A/208V 3P w/IEC309 3P+Gnd Conn
-	39Y8941	-	DPI 32A Single Phase C13 Enterprise PDU w/o line cord
-	39Y8948	-	DPI 60A Single Phase C19 Enterprise PDU w/o line cord
-	39Y8923	-	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) fixed line cord
-	39Y8905	-	DPI NEMA Rack PDU
-	39Y8951	-	DPI Universal Rack PDU w/ Nema L5-20P & L6-20P (US cord)
Uninterruptible Power Supply (UPS)2			
-	21304RX	-	IBM UPS 10000XHV
-	2130R3X	-	IBM UPS 1000T LV
-	39Y8857	-	IBM UPS 3U Online Battery Pack
-	21303RX	-	IBM UPS 7500XHV
-	32P1692	-	IBM UPS Extend Run Battery Pack
-	2130R31	-	IBM UPS3000XHV 200-240V (US HV cord)

Notes:
1. System x3650 ships with a single power supply. A second hot-swap power supply is optional for redundancy.

Option Number	Description
Rack and NetBAY	
93072RX	IBM 25U Standard Rack
93074RX	IBM 42U Standard Rack
93074XX	IBM 42U Standard Rack Extension
14104RX	IBM Linux Cluster Rack
93061RX	NetBAY11 Standard Rack Cabinet
93084RX	NetBAY42 Enterprise Rack Cabinet
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
Rack/Tower Conversion Kits	
17233RX	IBM 1U 15" Flat Panel Console Kit
17231RX	IBM 1U 17" Flat Panel Console Kit w/ Optical Drive Bay
39M2895	IBM USB Conversion Option
39M2894	IBM Virtual Media Conversion Option
17235RX	Rack Keyboard Tray
17232UX	IBM 2U Flat Panel Monitor Console Kit with US keyboard
17232NX	IBM 2U Flat Panel Monitor Console Kit without keyboard
17231UX	1U 17" Flat Panel Monitor Console Kit w/ US keyboard
Rack Console Connectivity	

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Option Number	Description
17352LX	IBM 2x16 Local Console Manager
17351GX	IBM 2x8 Local Console Manager
17351LX	IBM 1x8 Local Console Manager
31R3132	IBM 3M Console Switch Cable (USB)
39M2894	IBM Virtual Media Conversion Option
39M2895	IBM USB Conversion Option
17352LX	IBM 2x16 Local Console Manager
17354GX	IBM Global 4x16 Console Manager
1735L04	NetBAY Local Console Manager
1735R16	NetBAY Remote Console Manager
Monitors	
-	-
Keyboard and Mouse	
-	-

System x3650 tape options

SBB Number	Part Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
Tape Drives							
39M5664	39M5659	5385	DLT V4 Tape Drive	-	-	-	-
-	45591UX	-	1U Rack Mount External Back -Up	-	-	-	-
External Tape Enclosures							
39R6615	17331RU	-	IBM EXP400 Storage Expansion Unit	-	-	-	-
-	0034B0X	-	IBM NetBAY Tape Enclosure (Rack Mount)	-	-	-	-
-	4559FHX	-	IBM 2U Full High Stand Alone SCSI Tape Drive Enclosure	-	-	-	-
-	8767HHX	-	Half High Tape Drive Enclosure	-	-	-	-
Associated Options							
40K6522	41Y8976	4335	Tape Enablement Kit	-	-	-	-

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Chapter 17. System x3650 T

Table 37. System x3650 T At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
7980-52Y[2]	Dual 3.2/800 2MB L2	2 / 2	2GB/ 12GB	2U	2 / 2	P H S	Y	Dual Gbit	U320	Hot-Swap	2X146GB/ 292 GB	CD RW/ DVD 24x	2 / 0	6 / 6
7980-54Y[3]	Dual 3.2/800 2MB L2	2 / 2	2GB/ 12GB	2U	2 / 2	P H S	Y	Dual Gbit	U320	Hot-Swap	2X146GB/ 292 GB	CD RW/ DVD 24x	2 / 0	6 / 6
7980-55Y[2]	Dual 3.2/800 2MB L2	2 / 2	2GB/ 12GB	2U	2 / 2	P H S	Y	Dual Gbit	U320	Hot-Swap	0 GB/ 292 GB	CD RW/ DVD 24x	2 / 2	6 / 6
7980-53Y[3]	Dual 3.2/800 2MB L2	2 / 2	2GB/ 12GB	2U	2 / 2	P H S	Y	Dual Gbit	U320	Hot-Swap	0 GB/ 292 GB	CD RW/ DVD 24x	2 / 2	6 / 6

Notes:
1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7980-52Y is 7980-52U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. This model includes a 600 W DC Power Supply.
3. This model includes a 600 W AC Power Supply.

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System x3650 T processor options

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
31R3208	25R8876	0400	3.2GHz 800MHz 2MB L2 cache Xeon Processor	-
13M8286	25R8903	0371	Additional 3.2GHz/800MHz/2MB L2 Cache	-
32R0423	25R8905	0307	3.2GHz/800MHz/2M L2	-

Notes:

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

System x3650 T memory options

SBB Number	Option Number	Feature Code	Memory Description
			Memory DIMMs [1]
0001938	39M5809	1938	2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)

Notes:

1. A minimum of one DIMM is required. However, for performance, a minimum of two identical DIMMs should be populated. Pairs must always match.

System x3650 T hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
			SAS Hot-Swap HDDs[1]			
40K1055	40K1023	5165	73.4GB 10Krpm Ultra320 SCSI Hot-Swap HDD	-	-	-

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System x3650 T I/O options

SBB Number	Part Number	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
Storage Controllers						
-	-	-	-	-	-	-
External Disk Systems and Options						
-	17226xx	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-	-
-	24P82xx	TotalStorage DS4300 Model 60U with Turbo	-	-	-	-
Networking						
-	-	-	-	-	-	-

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Chapter 18. System x3800 and xSeries 260

Table 38. System x3800 and xSeries 260 At-A-Glance

Part Number[1]	Machine Type	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[2]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[3]	Internal HDD Interface	Internal HDD Storage (Std/Max)[4]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8865 -13Y	x3800	3.16 GHz 667MHz 1M L2 Cache Xeon Processor	1 / 4	1GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14
8865 -22Y	x3800	3.6 GHz 667 MHz L2 Cache Xeon Processor MP	1 / 4	2GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14
8865 -32Y	x3800	Intel Xeon Processor 7020 2.67/667 2x1MB L2 Cache Dual Core	1 / 4	2GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14
8865 -42Y	x3800	Intel Xeon Processor 7020 2.67/667 2x1MB L2 Cache Dual Core	1 / 4	2GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14
8865 -2TY	x3800	3.6 GHz 667 MHz L2 Cache Xeon Processor MP	1 / 4	2GB/ 32GB	Rack (7U)	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14
8865 -3TY	x3800	Intel Xeon Processor 7020 2.67/667 2x1MB L2 Cache Dual Core	1 / 4	2GB/ 32GB	Rack (7U)	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14

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Table 38. System x3800 and xSeries 260 At-A-Glance (continued)

Part Number[1]	Machine Type	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[2]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[3]	Internal HDD Interface	Internal HDD Storage (Std/Max)[4]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8865 -4TY	x3800	Intel Xeon Processor 7020 2.67/667 2x1MB L2 Cache Dual Core	1 / 4	2GB/ 32GB	Rack (7U)	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14
8865 -1TY	x3800	3.16 GHz 667MHz 1M L2 Cache Xeon Processor	1 / 4	1GB/ 32GB	Rack (7U)	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X DVD-ROM	6 / 12	16 / 14
8865 -11Y	x260	3.16GHz 667MHz - 1M L2 Cache	1 / 4	2GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6
8865 -1RY	x260	3.16GHz 667MHz - 1M L2 Cache	1 / 4	2GB/ 32GB	Rack (7U)	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6
8865 -21Y	x260	3.66GHz 667MHz - 1M L2 Cache	1 / 4	2GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6
8865 -2RY	x260	3.66GHz 667MHz - 1M L2 Cache	1 / 4	2GB/ 32GB	Rack (7U)	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6
8865 -12Y	x260	3.16GHz 667MHz - 1M L2 Cache	1 / 4	1GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6
8865 -1SY	x260	3.16GHz 667MHz - 1M L2 Cache	1 / 4	1GB/ 32GB	Rack (7U)	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6
8865 -E1Y	x260	3.66GHz 667MHz - 1M L2 Cache	2 / 4	4GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6

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Table 38. System x3800 and xSeries 260 At-A-Glance (continued)

Part Number[1]	Machine Type	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[2]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller[3]	Internal HDD Interface	Internal HDD Storage (Std/Max)[4]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8865 -E2Y	x260	3.16/667 1M L2 Cache	1 / 4	1GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	48x-20x CD-ROM	16 / 14	6 / 6
8865 -E3Y[5]	x3800	3.6/667 1M L2 Cache Xeon Processor MP	2 / 4	4GB/ 32GB	Tower	3 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X RAM-Read DVD-ROM IDE Drive	6 / 12	16 / 14
8865 -E4Y[5]	x3800	3.16/667 1M L2 Cache Xeon Processor MP	2 / 4	1GB/ 32GB	Tower	2 / 3	P H F S	Y	Dual 1GB	SAS	Hot-swap	0GB/ 3600GB	16X RAM-Read DVD-ROM IDE Drive	6 / 12	16 / 14

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8885-1RY is 8865-1RU. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. System memory may be expanded to 64 GB by removing the standard DIMMs and adding 3 memory expansion card options and a 4 GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM in each of the four DIMM sockets, when 4GB DIMMs become available.
3. If RAID is required on the onboard SAS controller, the ServeRAID 8i SAS RAID Controller is required to support RAID.
4. Maximum capacity is based on twelve 300GB 3.5" SAS HDDs.
5. This model comes standard with the ServeRAID 8i SAS RAID Controller and Remote Supervisor Adapter II installed.

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System x3800 and xSeries 260 processor options

SBB Number	Option Number	Feature Code	Description	SMP Support[1]
13M7421	40K2521	0346	3.16GHz 667MHz 1M L2 Cache, 0M L3 Cache	11Y, 1RY, E4Y,13Y
13M7423	40K2520	0347	3.66GHz 667MHz 1M L2 Cache, 0M L3 Cache	21Y, 2RY, E1Y,12Y, 1SY, E2Y, 22Y, E3Y
31R3775	40K2522	0651	Intel Xeon Processor 7020 2.67GHz 667MHz 2x1MB L2 Cache Dual Core Processor	32Y, 3TY
31R3777	40K2523	0652	Intel Xeon Processor 7040 3.0GHz 667MHz 2x2 MB L2 Cache Dual Core Processor	42Y, 4TY

Notes:
1. Three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed, and cache size. 1, 2, and 4 way configurations are supported.

Table 39. Additional Processor (for Servers) Dual Processors (for IntelliStations)

SBB Number	Option Number	Feature Code	Description
13M7422	13N0694	0381	Additional 3.16GHz 667MHz 1M L2 Cache, 0M L3 Cache
13M7424	13N0695	0384	Additional 3.66GHz 667MHz 1M L2 Cache, 0M L3 Cache
31R3776	25R8941	0444	Additional Intel Xeon Processor 7020 2.67GHz 667MHz 2x1MB L2 Cache Dual Core Processor
31R3778	25R8942	0445	Additional Intel Xeon Processor 7040 3.0GHz 667MHz 2x2 MB L2 Cache Dual Core Processor

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System x3800 and xSeries 260 memory options

SBB Number	Option Number	Feature Code	Description
Memory Cards[1]			
39R9502	41Y5000	4338	4-DIMM DDR2 Memory Card
-	41Y5005	-	Dual Core X3 Upgrade Kit[2]
Memory DIMMs			
-	30R5145	-	8GB (2x4GB kit) PC2-3200 CL3 ECC DDR2 Chipkill SDRAM RDIMM
-	39M5809	-	2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (51
-	39M5812	-	4GB (2x2GB Kit - 8GB Max Memory) PC2-3200 CL3 Double Rank ECC DDR2 SDRAM RDIMM
-	39M5821	-	1GB (2x512MB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (256Mb)
73P2874	73P2866	0504	2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
-	73P2867	-	4GB (2x2GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
30R5147	-	0535	4GB PC2-3200R CL3 ECC DDR2 SDRAM RDIMM
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5810	-	0553	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
Note: Min (1) pair, Max (8)pair DIMMs are required in pairs. Memory Cards require 2 DIMMs minimum. Memory Cards support 4 DIMMs each. Standard: 2 GB depending on server model, expandable to 16 GB. Type: 333 MHz, registered, ECC, PC3200 double data rate (DDR) II, SDRAM. Connectors: Two-way interleaved, four dual inline memory module (DIMM) connectors per memory card. Maximum: Four memory cards, each card containing two pairs of single-ranked PC3200 DDRII DIMMS.			

Notes:

1. The customer can choose up to a total of (4) four memory cards. One Memory Card is standard in the base. Four memory DIMMs can be selected for each memory card installed.
2. This option kit includes the components necessary to upgrade systems that currently have single-core Intel Xeon MP processors installed to support the dual-core Intel Xeon MP processors. Processors are not included in the kit and must be purchased separately.

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Table 40. Standard Memory Configuration

Model	Std. DIMM Configuration
11Y, 1RY, 21Y, 2RY	2 x 1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM (73P2874)
E1Y	4 x 1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM (73P2874)
12Y, 1SY, E2Y	2 x 512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (73P2873)
13Y	2 x 512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (39M5819)
22Y, 32Y, 42Y, 2TY, 3TY, 4TY	2 x 1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (39M5807)
E3Y	4 x 1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM (39M5807)
E4Y	2 x 1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (39M5807)

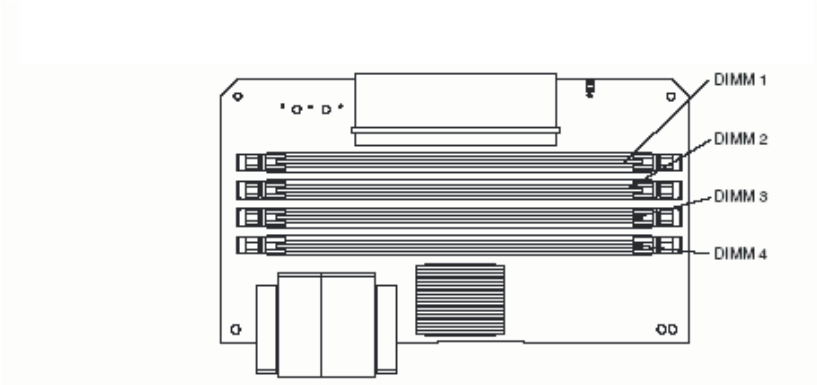

Figure 35. x3800 and x260 DIMMs

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System x3800 and xSeries 260 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty[1]
SAS Hard Drives						
40K1071	40K1039	5163	73GB 10K 3.5" SAS Hot-Swap HDD	SL	1- 12	12
40K1072	40K1040	5164	146GB 10K 3.5" SAS Hot-Swap HDD	SL	1- 12	12
40K1073	40K1041	5165	300GB 10K 3.5" SAS Hot-Swap HDD	SL	1- 12	12
40K1074	40K1042	5166	36GB 15K 3.5" SAS Hot-Swap HDD	SL	1- 12	12
40K1075	40K1043	5161	73GB 15K 3.5" SAS Hot-Swap HDD	SL	1- 12	12
40K1076	40K1044	5162	146GB 15K 3.5" SAS Hot-Swap HDD	SL	1- 12	12
Associated Options						
41Y4930	41Y5003	4341	3.5" HDD SAS Backplane	SL	-	-
			Optical Drives			
71P8149	10K3782	4116	IBM 48x-20x CD-ROM Internal IDE Drive (Black)	-	-	-
90P4239	22P7042	4107	48x-32x-48x CD-RW Drive	-	-	-
39M6344	32R2905	4139	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	-	-	-
-	73P3300	-	IBM 48X/32X/48X/16X Max CD-RW/DVD-ROM Combination Drive	-	-	-
39M6345	32R2906	4140	IBM Multi-Burner Plus	-	-	-
-	73P3305	-	IBM Multi-Burner Plus	-	-	-
39M6343	22P6950	4138	IBM 16X Max RAM-Read Black DVD-ROM Drive	-	-	-

Notes:
1. The optional 6-drive SAS backplane upgrade kit is available to increase the total hot-swap bays to 12 hot-swap bays.

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Bay	Form Factor	Height	Front Access	Usage
1	HS	SL	Y	OPEN
2	HS	SL	Y	OPEN
3	HS	SL	Y	OPEN
4	HS	SL	Y	OPEN
5	HS	SL	Y	OPEN
6	HS	SL	Y	OPEN
7	HS	SL	Y	OPEN
8	HS	SL	Y	OPEN
9	HS	SL	Y	OPEN
10	HS	SL	Y	OPEN
11	HS	SL	Y	OPEN
12	HS	SL	Y	OPEN
A	133mm (5.25in)	HH	Y	OPEN
B	133mm (5.25in)	HH	Y	OPEN
C	133mm (5.25in)	HH	Y	OPEN
-	89mm (3.5in)	SL	Y	FDD

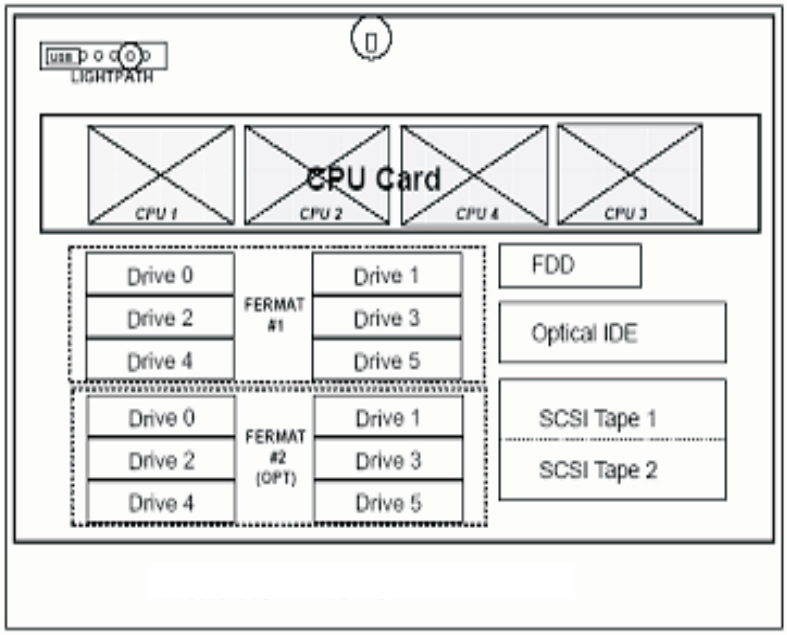

Figure 36. x3800 and x260 front view

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System x3800 and xSeries 260 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported
Storage Controllers						
24P0963	24P0960	1650	FAStT FC2-133 Host Bus Adapter	Half	64bit/ 133MHZ	1-6
39R8730	39R8729	1673	ServeRAID 8i SAS RAID Controller	Half	64bit/ 133MHZ	Dedicated slot
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2[1]	-	-	-
39R8819	39R8815	1685	ServeRAID-6M Ultra320 SCSI Controller (128MB)	-	-	-
39R8820	39R8816	1686	ServeRAID-6M Ultra320 SCSI Controller (256MB)	-	-	-
Networking						
30R5005	30R5001	1566	10 Gb Ethernet Sr Server Adapter	Half	64bit/ 266MHz	1-6
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64bit/ 1333MHz	1-6
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	Half	64bit/ 1333MHz	1-6
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	Half	64bit/ 1333MHz	1-6
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	Half	64bit/ 1333MHz	1-6
39Y6082	39Y6079	1478	NetXtreme 1000 T Ethernet Adapter 2	Half	64bit/ 1333MHz	1-6
32P9296	22P7801	1501	NetXtreme 1000 SX Fiber Ethernet Adapter	-	-	-
32P9298	31P6401	1503	NetXtreme 1000 T Dual Port Ethernet Adapter	-	-	-
31P6305	31P6301	1502	NetXtreme 1000 T Ethernet Adapter (copper)	-	-	-
		System Management				
39R9504	39Y9566	1606	Remote Supervisor Adapter II Slimline Refresh 1	Half	-	-
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	Half	-	-

Notes:
1. Internal tape drives are only supported with this adapter in slot 1 or 2.

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SLOT	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI? (Hotswap)	Slot Length	Scan Sequence	Device Number
PCI Slot 1	PCI-X 2.0	2	Universal	266	64	Y	Full	1	1
PCI Slot 2	PCI-X 2.0	4	Universal	266	64	Y	Full	2	1
PCI Slot 3	PCI-X 2.0	6	Universal	266	64	Y	Full	3	1
PCI Slot 4	PCI-X 2.0	8	Universal	266	64	Y	Full	4	1
PCI Slot 5	PCI-X 2.0	A	Universal	266	64	Y	Full	5	1
PCI Slot 6	PCI-X 2.0	C	Universal	266	64	Y	Full	6	1
Adaptec SAS Razor = 9005/041E	PCI-X	1	Universal	66	64	-	-	-	2
Broadcom 5704 Dual Gbit Ethernet Controller	PCI-X	1	Universal	66	32	-	-	-	1
16MB ATI 7000-M Video Controller	PCI-X	-	Universal	33	32	-	-	-	1

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System x3800 and xSeries 260 power and accessories

SBB Number	Option Number	Feature Code	Description
			Power[1]
39R9506	41Y5002	1973	775W Power Supply
			Uninterruptible Power Supply
-	32P1692	-	IBM UPS Extend Run Battery Pack
-	2130R2X	-	IBM UPS 750T HV
-	2130R6X	-	IBM UPS 1500T HV
-	2130R31	-	IBM UPS3000XHV 200-240V (US HV cord)
			Power Distribution Units
-	73P5844	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
-	73P5855	-	60A/208V 1P w/IEC309 2P+Gnd Conn
-	73P5847	-	60A/208V 3P w/IEC309 3P+Gnd Conn
-	73P5856	-	63A/320V 1P w/IEC309 P+N+Gnd Conn
-	39Y8905	-	DPI NEMA Rack PDU
-	39Y8999	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
-	39Y9000	-	60A/208V 3P w/IEC309 3P+Gnd Conn

Notes:
1. System x3800 and xSeries 260 ship standard with two 775W hot-swap capable power supplies.

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SBB Number	Option Number	Feature Code	Description
			Rack Console Connectivity
-	17351LX	-	1x8 Local Console Manager
-	17351GX	-	2x8 Local Console Manager
-	17352LX	-	2x16 Local Console Manager
39Y7952	31R3130	3750	3M Console Switch Cable (PS/2)[1]
-	17352GX	-	2x16 Global Console Manager
-	17354GX	-	4x16 Global Console Manager
			Rack/Tower Conversion Kits
0004347	32R0719	4347	7Ux26D Tower-to-Rack Conversion Kit[2]
			Racks
-	14104RX	-	IBM 42U Linux Cluster Rack
-	93061RX	-	NetBAY11 Standard Rack Cabinet
-	93072RX	-	IBM 25U Standard Rack
-	93074RX	-	IBM 42U Standard Rack
-	93074XX	-	IBM 42U Standard Rack Extension
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet
			Monitors
-	90P0725	-	C170 ThinkVision 17" (VIS: 16.0) CRT business black full flat screen shadow mask monitor
-	90P0717	-	L150p ThinkVision 15" business black flat panel LCD monitor
			Keyboard and Mouse
-	73P3144	-	IBM PS/2 Keyboard with UltraNav
-	90P0777	-	IBM Enhanced Performance Keyboard - USB
-	39M7228	-	IBM USB RISC Travel Keyboard with UltraNAV
-	33L3252	-	SpaceBall 3D Input Device (Business Black)

Notes:
1. Converts KVM signals for CAT5 cabling for servers with PS/2 KVM ports.
2. Provides hardware needed to convert the tower unit into a 7U-high rack-mounted server.

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System x3800 and xSeries 260 tape options

SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor[1]	Ext Tape Encl
Tape Drives							
39M5623	25R0012	5363	200/ 400GB Full High LTO Internal Back -up	B/C	SCSI	FH 133mm (5.25 in)	-
39M5621	25R0005	5364	200/ 400 GB Half High LTO Generation 2 Tape Drive	B - C	Ultra 160 (16-bit)	HH 133mm (5.25 in)	-
Tape Autoloaders							
-	36232LX	-	LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	SDLT 320 1x8 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
External Tape Libraries							
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-
External Tape Enclosures							
-	4559FHX	-	IBM 2U Full High Stand Alone SCSI Tape Drive Enclosure	-	-	-	-
-	45594UX	-	IBM 4U Rackmount SCSI Tape Drive Enclosure	-	Ultra2 (16-bit)	4U Rack	-
-	0034B0X	-	IBM NetBAY Tape Enclosure (Rack Mount)	-	-	-	-
Associated Options							
33P3127	33P2751	4221	Ultra320 3-Pack HDD Kit	-	-	-	-

Notes:
1. A minimum of 1 FH and a maximum of 2 HH tape drives may be installed in this system.
2. External attachment need one of the 3 External enclosures (4559HHX, 45591UX, or 45594UX).
3. Ships with 25R0047 cable.
4. Can not be used in CTO, no L1 part.

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Chapter 19. System x3850 and xSeries 366

The System x3850 and xSeries 366 is housed in a 3U high, 19in rack-mountable drawer and also provides three USB ports (one front, two rear), two 9-pin serial ports, keyboard port, mouse port and an integrated ATI 7000-M video controller with 16MB of video memory. A keyboard and mouse is not provided.

Table 41. System x3850 and xSeries 366 At-A-Glance

Part Number[1]	Machine Type	CPU/FSB Speed (GHz/MHz)-Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3, 4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8863-1SY	x3850	3.16/667 1MB L2 Cache Xeon Processor MP	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-2SY	x3850	3.6/667- 1MB L2 Cache Xeon Processor MP	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-3SY[12]	x3850	2.67/667 2MB L2 Cache Dual Core	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-4SY	x3850	Xeon Processor 7040	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-E8Y[9, 10]	x3850	3.6G/667 1MB L2 Cache Xeon Processor MP	2 / 4	2GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	-	7 / 6

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Table 41. System x3850 and xSeries 366 At-A-Glance

Part Number[1]	Machine Type	CPU/FSB Speed (GHz/MHz)-Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3, 4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8863-E9Y	x3850	3.16/ 667 1M L2 Cache 0M L3 Cache	1 / 4	2GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot- Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	-	7 / 6
8863- EAY[9, 10,11,12]	x3850	2.67/667 2x1MB L2 Cache Intel Xeon Processor 7020 Dual Core	4 / 4	8GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot- Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	-	7 / 6
8863-1RY	x366	3.16/667 1M L2 Cache 0M L3 Cache	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot- Swap	0GB/ 440GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-2RY	x366	3.66/667 1MB L2 Cache 0M L3 Cache	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot- Swap	0GB/ 440GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-E1Y[9]	x366	3.66/667 1MB L2 Cache 0M L3 Cache	2 / 4	4GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot- Swap	108GB/ 440GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 3	6 / 6
8863-E2Y	x366	3.66/667 1M L2 Cache 0M L3 Cache	2 / 4	2GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot- Swap	0GB/43 8GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 3	6 / 6
8863-E5Y	x366	3.66/667 1MB L2 Cache 0M L3 Cache	2 / 4	2GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot- Swap	0GB/ 440GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 3	6 / 6

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Table 41. System x3850 and xSeries 366 At-A-Glance

Part Number[1]	Machine Type	CPU/FSB Speed (GHz/MHz)-Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3, 4]	Form Factor	Power Supply Quantity (Std/Max)[5]	Hot-Swap (Power, Slots, HDD, Fans, Memory)	System Management Processor	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8863-E6Y	x366	3.16GHz 667MHz 1M L2 Cache 0M L3 Cache	1 / 4	2GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-E7Y[9]	x366	3.66/667 1MB L2 Cache 0M L3 Cache	4 / 4	8GB/ 64GB	Rack (3U)	2 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-3RY[12]	x366	2.67/667 2MB L2 Cache	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8863-4RY[12]	x366	3.0/667 4MB L2 Cache	1 / 4	2GB/ 64GB	Rack (3U)	1 / 2	P S H F M	Y	Dual 1GB	SAS	Hot-Swap	0GB/ 438GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8863-1RY is 8863-1RU. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with the country-specific designator.
2. Intel Xeon MP, 64-bit, up to 3.66GHz and 1MB L2 Cache on a 667MHz dual front side bus architecture.
3. High-speed, two-way interleaved PC2-3200 SDRAM. Maximum capacity requires replacing the standard DIMMs, when 4GB DIMMs become available.
4. Memory-mirroring, hot-swap, hot-add and Chipkill functions are supported.
5. See 'Power and Accessories' section for more information on the power supplies.
6. Integrated Broadcom 5704 Dual-port 10/100/1000 Gigabit Ethernet.
7. Integrated Serial Attached SCSI (SAS) controller to support SAS HDD drives.
8. Maximum capacity is based on six 73GB HDDs
9. 8863-E1Y, 8863-E7Y, 8863-E8Y, and 8863-EAY ship standard with the ServeRAID-8i SAS Controller.
10. 8863-E8Y and 8863-EAY ship standard with the Remote Supervisor Adapter.

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11. 8863-EAY ships standard with four memory card adapters.
12. Models 8863-3RY, 8863-4RY, 8863-3SY, and 8863-EAY ship with a dual core processor. Some dual processor models require the installation of a specific VRM for proper server operations.

System x3850 and xSeries 366 processor options

SBB Number	Option Number	Feature Code	Processor Upgrades[1]	SMP Support
13M7421	40K2521	0346	3.16GHz 667MHz 1M L2 Cache Xeon Processor MP	1RY, E6Y, 1SY, E9Y
13M7422	13N0694	0381	3.16GHz 667MHz 1M L2 Cache Xeon Processor MP	1RY, E6Y, 1SY, E9Y
13M7424	13N0695	0384	3.66GHz 667MHz 1MB Xeon Processor MP	2RY, E1Y, E2Y, E8Y
13M7423	40K2520	0347	3.66GHz 667MHz 1MB Xeon Processor MP	2RY, E1Y, E2Y, E8Y
31R3775	40K2522	0651	Intel Xeon Processor 7020 2.67GHz 667MHz 2x1MB L2 Cache Dual Core Processor	3RY, 3SY, EAY
31R3777	40K2523	0652	Intel Xeon Processor 7040 3.0GHz 667MHz 2x2 MB L2 Cache Dual Core Processor	4RY, 4SY

Notes:
1. One (1) processor is required per system.
2. A maximum of four (4) processors can be installed per system.
3. All processors must be identical in type, speed, and cache size.

Table 42. Additional Processor (for Servers) Dual Processors (for IntelliStations)

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
13M7422	13N0694	0381	Additional 3.16GHz 667MHz 1M L2 Cache, 0M L3 Cache	-
13M7424	13N0695	0347	Additional 3.66GHz 667MHz 1M L2 Cache, 0M L3 Cache	-
31R3776	40K2522	0444	Additional Intel Xeon Processor 7020 2.67GHz 667MHz 2x1MB L2 Cache Dual Core Processor	-
31R3778	40K2523	0445	Additional Intel Xeon Processor 7040 3.0GHz 667MHz 2x2 MB L2 Cache Dual Core Processor	-

Notes:
1. Three (3) of these processors may be selected but are not required.

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System x3850 and xSeries 366 memory options

SBB Number	Option Number	Feature Code	Memory Description[1, 2]
			Memory Cards
39R9502	41Y5000	4338	4-DIMM DDR2 MEMORY CARD[3]
0001919	41Y5005	1919	Dual Core X3 Upgrade Kit[4]
			Memory DIMMs
-	73P2866	-	2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
-	73P2867	-	4GB (2x2GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)
30R5147	-	0535	4GB PC2-3200R DDR2 CL3 ECC SDRAM RDIMM
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5810	-	0553	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
Note: Standard: 1 GB depending on server model, expandable to 32 GB. Type: 333 MHz, registered, ECC, PC3200 double data rate (DDR) II, SDRAM. Connectors: Two-way interleaved, four dual inline memory module (DIMM) connectors per memory card. Maximum: Four memory cards, each card containing two pairs of single-ranked PC3200 DDRII DIMMS.			

Notes:
1. x3850 and x366 support Chipkill, memory mirroring, memory ProteXion technologies, hot-swap and hot-add memory.
2. Supported memory DIMMs can coexist in the same server. However, memory DIMMs of the same capacity must be installed in matched pairs.
3. One memory card comes standard. At least one memory card is required. A total of four memory cards with four DIMM slots each, may be installed, allowing a total of 16 DIMMs per chassis.
4. This option kit includes the components necessary to upgrade systems that currently have single-core Intel Xeon MP processors installed to support the dual-core Intel Xeon MP processors. Processors are not included in the kit and must be purchased separately.

Table 43. Standard Memory Configuration

Model	Std. DIMM Configuration
1RY, 2RY, E2Y, E5Y, E6Y	2 x 1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
E1Y	4 x 1GB PC2-3200 ECC DDR-2 SDRAM RDIMM
E7Y, EAY	8 x 1GB PC2-3200 ECC DDR-2 SDRAM RDIMM

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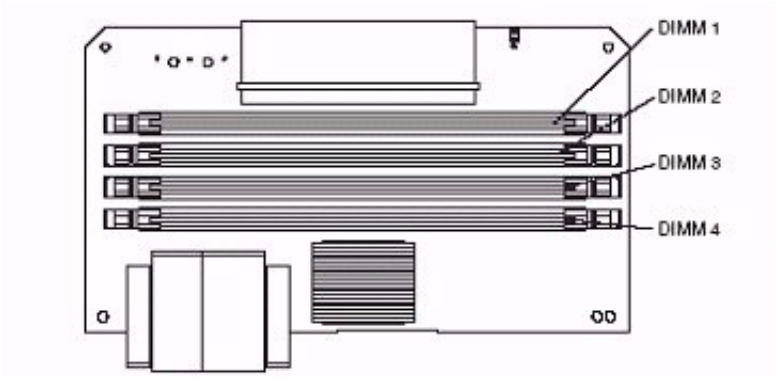

Figure 37. x3850 and x366 DIMMs

Performance Sensitive Configurations:

Card number	DIMM Number
1	1 & 3
2	1 & 3
3	1 & 3
4	1 & 3
1	2 & 4
2	2 & 4
3	2 & 4
4	2 & 4

Figure 38. x3850 and x366 performance sensitive configurations

Cost Sensitive Configurations:

Card number	DIMM Number
1	1 & 3
1	2 & 4
2	1 & 3
2	2 & 4
3	1 & 3
3	2 & 4
4	1 & 3
4	2 & 4

Figure 39. x3850 and x366 cost sensitive configurations

Mirrored Configurations:

Card number	DIMM Number
1	1 & 3
3	1 & 3
1	2 & 4
3	2 & 4
2	1 & 3
4	1 & 3
2	2 & 4
4	2 & 4

Figure 40. x3850 and x366 mirrored configurations

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System x3850 and xSeries 366 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity
SAS HDDs						
40K1083	40K1051	5158	IBM 36GB 10K 2.5" SAS	-	-	-
40K1084	40K1052	5159	IBM 73GB 10K 2.5" SAS	-	-	-
Optical Devices[2]						
32R2784	39R7508	4144	CD-RW/DVD Combo V Ultrabay Enhanced	-	-	-
32R2899	32R2899	4141	CD-ROM Ultrabay Enhanced Drive	-	-	-
32R2901	73P3312	4143	Multi-Burner Ultrabay Enhanced Drive	-	-	-
External Storage Expansion Units				**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	172260U	-	DS4300 Midrange Disk (60U)	Rack (3U)		
-	17226LU	-	DS4300 Midrange Disk (6LU)	Rack (3U)		
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-		
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-		

Notes:
1. Installation may require removing standard devices.
2. All models ship standard with an Ultralight DVD-ROM Ultrabay Enhanced.

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Bay	Form Factor	Height	Front Access	Usage
1	2.5in	SL	Yes	HDD
2	2.5in	SL	Yes	HDD
3	2.5in	SL	Yes	HDD
4	2.5in	SL	Yes	HDD
5	2.5in	SL	Yes	HDD
6	2.5in	SL	Yes	HDD
7	5.25in	Ultrabay	Yes	Optical

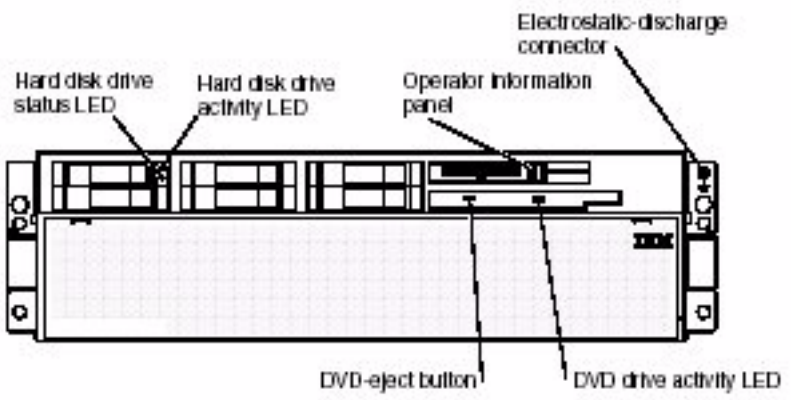

Figure 41. x3850 and x366 front view

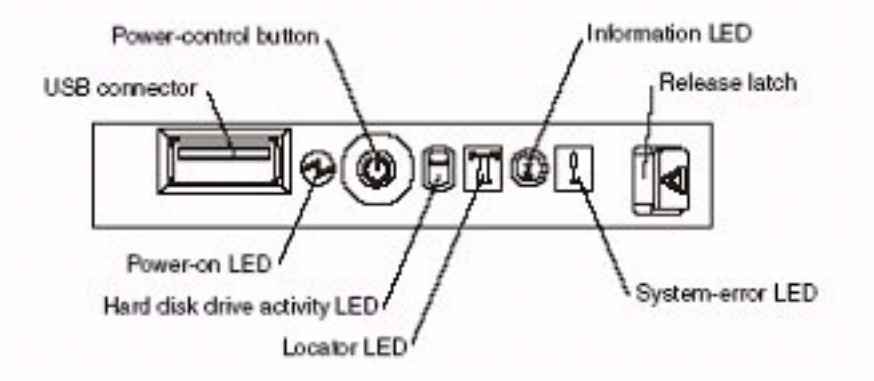

Figure 42. x3850 and x366 operator information panel

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System x3850 and xSeries 366 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support[1]	Slots Supported	Hot-Plug Capable
			Storage Controllers				
24P0963	24P0960	1650	DS4000 Host Bus Adapter	Half	64-bit/ 133MHz	1 ... 6	-
39R8730	39R8729	1673	ServeRAID 8i SAS Raid Controller	Half	64-bit/ 133MHz	Dedicated Raid Slot	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1 ... 6	-
39R8819	39R8815	1685	ServeRAID-6M Ultra320 SCSI Controller (128MB)	-	-	-	-
39R8820	39R8816	1686	ServeRAID-6M Ultra320 SCSI Controller (256MB)	-	-	-	-
			External Disk Systems and Options				
-	24P82xx	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17226xx	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17401xx	-	IBM TotalStorage DS4000 EXP700 Expansion Unit (all models)	-	-	-	-
-	17101xx	-	IBM TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-	-	-	-
-	17001RS	-	IBM TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	IBM TotalStorage DS400 - Dual Controller	-	-	-	-
-	17011RL	-	IBM TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	IBM TotalStorage DS300 - Single Controller	-	-	-	-
-	17226xx	-	DS4300 Midrange Disk (6LX)	-	-	-	-
-	17421xx	-	DS4400 Midrange Disk System	-	-	-	-
-	17429xx[2]	-	DS4500 Midrange Disk System	-	-	-	-
-	17226xx	-	TotalStorage DS4300 Midrange Disk Systems (all models)	-	-	-	-
-	17421xx	-	TotalStorage DS4400 Midrange Disk	-	-	-	-
-	17241xx	-	TotalStorage DS4100 Midrange Disk	-	-	-	-
-	24P82xx	-	TotalStorage DS4300 Model 60U with Turbo	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support[1]	Slots Supported	Hot-Plug Capable
			Networking				
39Y6071	39Y6066	1484	NetXtreme II 1000 Express Ethernet Adapter	-	-	-	-
39Y6129	39Y6126	2944	PRO/1000 PT Dual Port Server Adapter by Intel	-	-	-	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	1 ... 6	X
39Y6082	39Y6079	1478	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	1 ... 6	-
30R5005	30R5001	1566	IBM 10 GB Ethernet Adapter	Half	64-bit/ 133MHz	1 ... 6	-
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	Half	64-bit/ 133MHz	1 ... 6	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	Half	64-bit/ 133MHz	1 ... 6	-
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	Half	64-bit/ 133MHz	1 ... 6	-
			System Management				
39Y9567	39Y9566	1605	Remote Supervisor Adapter II Slimline Refresh 1	Half	-	-	-
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	Half	-	-	-
			Other I/O				
-	-	-	-	-	-	-	-

Notes:
1. Six 64-bit Active PCI-X 2.0 slots per chassis.
2. Option 17429xx may be subject to a rack installation/configuration fee.
3. IXA Adapter is supported on the x3850 and x366 and must be installed in slot 2 only.

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Slot/Device	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI	Slot Length
Dedicated Slot	PCI-X	1	Universal	66MHz	64-bit	N	Special
PCI Slot1	PCI-X 2.0	2	Universal	266MHz	64-bit	Y	Full
PCI Slot 2	PCI-X 2.0	4	Universal	266MHz	64-bit	Y	Full
PCI Slot 3	PCI-X 2.0	6	Universal	266MHz	64-bit	Y	Full
PCI Slot 4	PCI-X 2.0	8	Universal	266MHz	64-bit	Y	Full
PCI Slot 5	PCI-X 2.0	A	Universal	266MHz	64-bit	Y	Full
PCI Slot 6	PCI-X 2.0	C	Universal	266MHz	64-bit	Y	Full
Adaptec SAS Razor - 9005/041E	PCI-X	1	Universal	66MHz	64-bit	N/A	N/A
Broadcom 5704 Dual Gbit Ethernet Controller	PCI-X	1	Universal	66MHz	-	N/A	N/A
ATI 7000-M Video Ctrl w/16MB Memory	PCI-X	-	Universal	33MHz	-	N/A	N/A

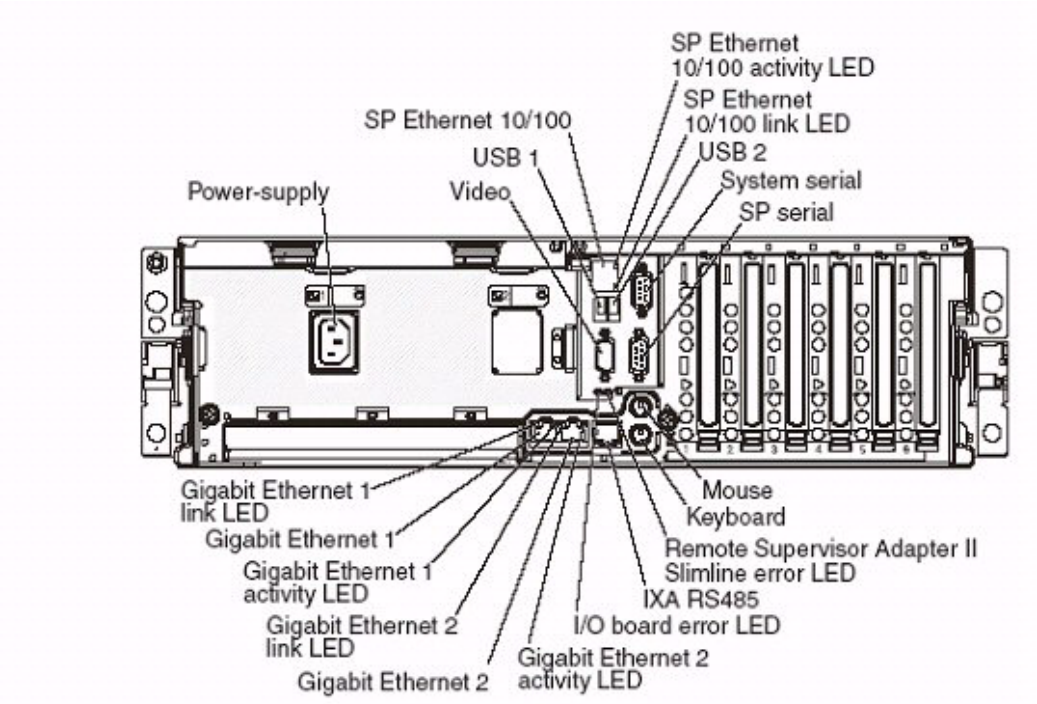

Figure 43. x3850 and x366 rear view

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System x3850 and xSeries 366 power and accessories

SBB Number	Option Number	Feature Code	Description
			Power[1]
39R9505	41Y5001	1972	1300W Power Supply
			Power Distribution Units
39Y8011	39Y8923	6061	DPI 60A Three Phase C19 Enterprise PDU w/ IEC309 3P+G (208V) line cord
39Y8006	39Y8941	6010	DPI 32A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	39Y8942	-	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	39Y8945	-	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
-	39Y8948	-	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	39Y8999	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
-	39Y9000	-	60A/208V 3P w/IEC309 3P+Gnd Conn
			Uninterruptible Power Supply (UPS)[2]
-	21303RX	-	IBM UPS 7500XHV
-	21304RX	-	IBM UPS 10000XHV
39Y8037	39Y8857	5743	IBM UPS 3U Online Battery Pack

Notes:
1. System x3850 and xSeries 366 ship with a single 1300W hot-swap capable power supply and a rack power cable. When used with a 110V AC source, the power rating for this power supply falls to 650W. System x3850 and xSeries 366 support two power supplies with a 110V AC source without redundancy. To maintain full redundancy on a full configuration use two power supplies (Option 13M7413) with a 220V AC source.
2. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.
3. Height is 2U. See Rack Cabinets and Options section for supported IBM racks.

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SBB Number	Option Number	Feature Code	Description
			Racks and NetBAY
-	93061RX	-	NetBAY11 Standard Rack Cabinet
-	9307-2SX	-	IBM 25U Standard Rack
-	9307-4EX	-	IBM 42U Standard Rack Extension
-	9307-4SX	-	IBM 42U Standard Rack
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
			Rack Console Connectivity[1]
-	1735L04	-	NetBAY Local Console Manager
-	1735R16	-	NetBAY Remote Console Manager
-	17351LX	-	1x8 Local Console Manager
-	17352LX	-	2x16 Local Console Manager
-	17351GX	-	2x8 Local Console Manager
-	17352GX	-	2x16 Global Console Manager
-	17354GX	-	4x16 Global Console Manager
			Monitors
-	90P0717	-	IBM L150p 15" TFT Monitor (Hybrid)
-	90P0721	-	IBM L170p 17" TFT Monitor (Hybrid)
-	90P0726	-	IBM C170 17" CRT Monitor
			Keyboard and Mouse[2]
02R3206	25R6968	8800	IBM Preferred Pro Full Size Keyboard - PS/2
-	90P0777	-	IBM Enhanced Performance Keyboard - USB
13M7124	90P0743	8908	IBM Optical Wheel Mouse - USB
02R3486	90P0742	8904	IBM ScrollPoint 800 DPI Optical Mouse - USB & PS/2

Notes:
1. Refer to the Rack Console Options section for information regarding console connectivity using these options.
2. Installation within a rack requires optional Monitor Compartment (Option 94G7444).
3. System x3850 and xSeries 366 support rack configurations only and ships without a keyboard or mouse.

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System x3850 and xSeries 366 tape options

SBB Number	Option Number	Feature Code	Tape Drive	Bays Supported	Storage Interface	Form Factor	Ext Tape Enclosures
24P7303	59P6736	5361	IBM 160/320 GB SDLT Internal SCSI Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	45594UX
71P9165	59P6744	5358	IBM 200/400GB LTO FH Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) HH	45594UX
			Tape Autoloaders				
-	36232LX	-	LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	SDLT 320 1x8 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
-	87691VX	-	1U VXA-320 Tape Autoloader	-	-	-	-
			External Tape Enclosures				
-	4559FHX	-	2U Full High Stand Alone SCSI Tape Drive Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (4.41in tall)	-
-	45594UX	-	4U Rackmount SCSI Tape Drive Enclosure	-	Ultra2 (16-bit)	4U Rack	-
-	0034B0X	-	NetBAY Tape Enclosure (Rack Mount)	-	-	-	-
			External Tape Libraries				
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-

Note: External attachments need one of the three external enclosures (4559HHX, 45591UX, 45594UX). Ships with 25R0047 cable.

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Chapter 20. System x3950 and xSeries 460

Table 44. System x3950 and xSeries 460 At-A-Glance

Part Number[1]	Machine Type	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[3]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)
8872-1RY	x3950	2.83/667 512KB L2 4MB L3 Cache	2 / 4	2GB/ 32GB	Rack (3U)	2 / 2	P, H, F, S	Y	1Gb	SAS	Hot-swap	0GB/ 440.4GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8872-2RY	x3950	3.0/667 512KB L2 8MB L3 Cache	2 / 4	2GB/ 32GB	Rack (3U)	2 / 2	P, H, F, S	Y	1Gb	SAS	Hot-swap	0GB/ 440.4GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8872-3RY	x3950	3.33/667 512KB L2 8MB L3 Cache	2 / 4	2GB/ 32GB	Rack (3U)	2 / 2	P, H, F, S	Y	1Gb	SAS	Hot-swap	0GB/ 440.4GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8872-5RY	x460	Intel Xeon Processor 7020	2 / 4	2GB/ 32GB	Rack (3U)	2 / 2	P, H, F, S	Y	1Gb	SAS	Hot-swap	0GB/ 440.4GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8872-6RY	x460	Intel Xeon Processor 7040	2 / 4	2GB/ 32GB	Rack (3U)	2 / 2	P, H, F, S	Y	1Gb	SAS	Hot-swap	0GB/ 440.4GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8872-7RY	x3950	Intel Xeon Processor 7020	2 / 4	2GB/ 32GB	Rack (3U)	2 / 2	P, H, F, S	Y	1Gb	SAS	Hot-swap	0GB/ 440.4GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6
8872-8RY	x3950	Intel Xeon Processor 7040	2 / 4	2GB/ 32GB	Rack (3U)	2 / 2	P, H, F, S	Y	1Gb	SAS	Hot-swap	0GB/ 440.4GB	Ultralight DVD-ROM Ultrabay Enhanced	7 / 6	6 / 6

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the

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following nomenclature: xxU. For example, the U.S. orderable part number for 8872-1RY is 8872-1RU. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.

2. The x3950 and x460 can be expanded only to an 8-way, 16-way, or 32-way configuration by adding MXE-460 servers. See the "System x3950 and xSeries 460 Processor Options" section in this chapter for additional configuration information.
3. Maximum capacity is based on installation of six 73.4GB SAS HDDs.

System x3950 and xSeries 460 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
13M7275	13N0715	0287	2.83GHz 667MHz 1MB L2 4MB L3 Cache Xeon Processor MP	1RY
13M7276	13N0714	0288	3.0GHz 667MHz 1MB L2 8MB L3 Cache Xeon Processor MP	2RY
13M7277	13N0713	0289	3.33GHz 667MHz 1MB L2 8MB L3 Cache Xeon Processor MP	3RY
31R3775	40K2522	0651	Intel Xeon Processor 7020	5RY,7RY[2]
31R3777	40K2523	0652	Intel Xeon Processor 7040	6RY, 8RY[2]
x3950 and x460 Processor Scalability[3]				
-	8874-1RY	-	MXE-460[4, 5]	-
-	8874-2RY	-	MXE-460[4, 6]	-
-	8874-3RY	-	MXE-460[4, 6]	-
13M8122	13M7414	4236	2.3m Scalability Cable[7, 8, 9]	-
13M8123	13M7416	4237	2.9m Scalability Cable[8, 9]	-
0003916	41Y5004	3916	IBM System X3950 Scalability Enablement/Memory Adapter	-

Note: An MXE-460 system is not required for system scalability. Either System x3950, xSeries 460 or MXE-460 servers can be used interchangeably for system scaling. The only requirement is that a System x3950 or xSeries 460 server is used as the primary boot node.

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
13M7275	13N0715	0287	2.83GHz/667MHz-1MB L2 4MB L3	1RY
13M7276	13N0714	0288	3.0GHz/667MHz-1MB L2 8MB L3	2RY
13M7277	13N0713	0289	3.33GHz/667MHz-1MB L2 8MB L3 Cache Xeon Processor MP	3RY
x460 Processor Scalability2				
-	8874-1RY	-	MXE-460[3]	-
13M8122	13M7414	4236	2.3m Scalability Cable[4, 5, 6]	-
13M8123	13M7416	4237	2.9m Scalability Cable[5, 6]	-

Notes:

1. One processor is required per system, providing a maximum of four. All processors must be identical in type, speed, and cache size.

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2. These processor options support up to 32-socket (64-cores) SMP applications in the System x3950 and xSeries 460.
3. The System x3950 and xSeries 460 can be expanded only to a two chassis 8-way configuration, four chassis 16-way configuration, or an eight chassis 32-way configuration by connecting xSeries MXE-460 servers. The two chassis 8-way configuration requires a x3950 or x460 and one MXE-460. The four chassis 16-way configuration requires a x3950 or x460 and three MXE-460 servers. The eight chassis 32-way configuration requires a x3950 or x460 and seven MXE-460 servers.
4. The xSeries MXE-460 server is functionally identical to the System x3950 and xSeries 460 servers and supports the same hardware configurations, however it is supported only as an expansion module to a base System x3950 or xSeries 460 and not in a stand-alone configuration. MXE-460 ships with two empty 4-slot memory expansion cards (13M7409) and two power supplies as standard.
5. On the 8874-1RY MXE-460 the following processor options can be installed: 13N0715, 13N0714, and 13N0713.
6. On the 8874-2RY MXE-460 the following processor options can be installed: 25R8941 and 25R8942.
7. The two chassis 8-way configuration requires two 2.3m scalability cables to interconnect the x3950 or x460 with one MXE-460.
8. The four chassis 16-way configuration requires three 2.3m scalability cables and three 2.9m scalability cables to interconnect the x3950 or x460 with three MXE-460 servers.
9. The eight chassis 32-way configuration requires six 2.3m scalability cables and six 2.9m scalability cables to interconnect the x3950 or x460 with seven MXE-460 servers.

Table 45. Additional Processor

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
13M7418	13N0715	0414	Additional 2.83GHz 667MHz 1MB L2 4MB L3 Cache Xeon Processor MP	1RY
13M7419	13N0714	0415	Additional 3.0GHz 667MHz 1MB L2 8MB L3 Cache Xeon Processor MP	2RY
13M7420	13N0713	0416	Additional 3.33GHz 667MHz 1MB L2 8MB L3 Cache Xeon Processor MP	3RY
31R3776	40K2522	0444	Additional Intel Xeon Processor 7020 2.67GHz 667MHz 2x1MB L2 Cache Dual Core Processor	5RY,7RY
31R3778	40K2523	0445	Additional Intel Xeon Processor 7040 3.0GHz 667MHz 2x2 MB L2 Cache Dual Core Processor	6RY, 8RY

System x3950 and xSeries 460 memory options

SBB Number	Option Number	Feature Code	Memory Description
			Memory Cards[1]
39R9502	41Y5000	4338	4-DIMM DDR2 MEMORY CARD
0003916	41Y5004	3916	IBM System X3950 Scalability Enablement/Memory Adapter
0001919	41Y5005	1919	Dual Core X3 Upgrade Kit[2]
			Memory DIMMs
73P2874	39M5809	0504	2GB (2x1GB) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM Kit (512MB)
30R5147	39M5812	0535	4GB (2x2GB) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM Kit (512MB)

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SBB Number	Option Number	Feature Code	Memory Description
-	30R5145	-	8GB (2x4GB kit) PC2-3200 CL3 ECC DDR2 Chipkill SDRAM RDIMM
Note: An MXE-460 system is not required for system scalability. Either System x3950, xSeries 460 or MXE-460 servers can be used interchangeably for system scaling. The only requirement is that a System x3950 or xSeries 460 server is used as the primary boot node.			

SBB Number	Option Number	Feature Code	Memory Description
			Memory Cards
13M7285	13M7409	4219	4-DIMM DDR2 MEMORY CARD
			Memory Dimms
73P2874	-	0504	1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
-	73P2866	-	2GB (2x1GB) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM Kit (512MB)
73P2875	-	0512	2GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
-	73P2867	-	4GB (2x2GB) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM Kit (512MB)

Notes:
1. Two memory cards come standard. The first memory card has 2x1GB memory DIMMs installed. The second memory card is open. A total of four memory cards with four DIMM slots each, may be installed, allowing a total of 16 DIMMs (a total of 64GB) per chassis.
2. This option kit includes the components necessary to upgrade systems that currently have single-core Intel Xeon MP processors installed to support the dual-core Intel Xeon MP processors. Processors are not included in the kit and must be purchased separately.

Table 46. Standard Memory Configuration

Model	Std. DIMM Configuration
1RY,2RY,3RY, 5RY, 6RY	2 X 1GB PC2-3200 CL3 ECC DDR-2 SDRAM RDIMM
7RY, 8RY	2 X 1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM

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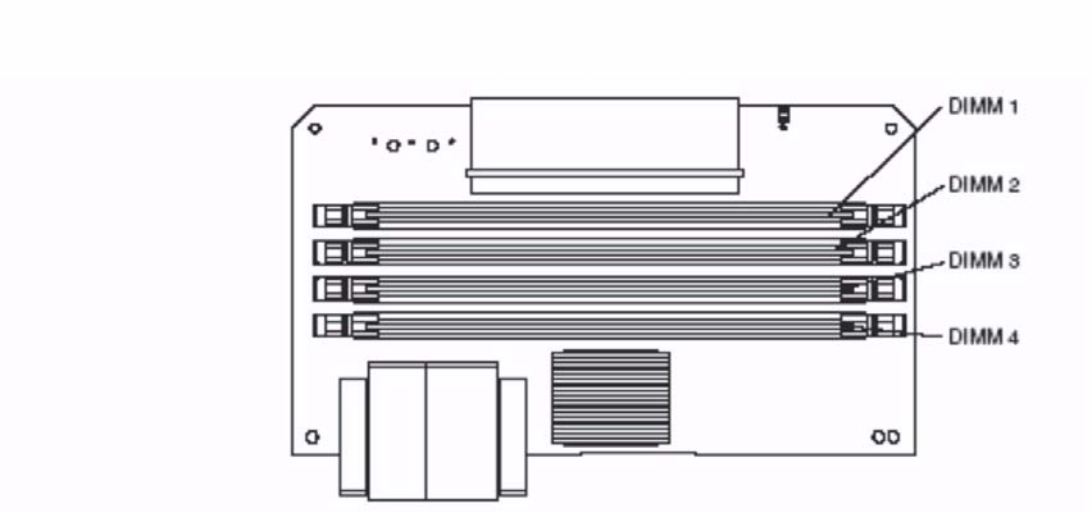

Figure 44. x3950 and x460 DIMMS

System x3950 and xSeries 460 hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity
Diskette Drives						
23K4959	05K9276	5300	IBM USB Portable Diskette Drive	-	-	-
SAS HDDs						
40K1083	40K1051	5158	IBM 36GB 10K 2.5" SAS	SL	1-6	6
40K1084	40K1052	5159	IBM 73GB 10K 2.5" SAS	SL	1-6	6
Optical Drives[2]						
-	73P3275	-	Thinkpad 24x/24x CD-RW / DVD Combo V Ultrabay Enhanced	-	-	-
			External Storage Units	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-		
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-		

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity
SAS HDDs						
26K5658	26K5654	5241	36GB 10K 2.5" SAS	SL	1-6	6
26K5659	26K5655	5242	73GB 10K 2.5" SAS	SL	1-6	6
Optical Drives2						
25R7477	-	4111	Multiburner	SFF	7	1
26K9994	-	4112	Ultrabay Enhanced Drive	SFF	7	1
26K9995	-	4113	Ultralight DVD-Rom Ultrabay Enhanced	SFF	7	1
26K9996	-	4114	24x/24x CD-RW/DVD Combo V Ultrabay enhanced	SFF	7	1
			External Storage Units	**Form Factor**		
-	17331RU	-	EXP400 Storage Expansion Unit	Rack (3U)		
-	172260U	-	DS4300 Midrange Disk (60U)	Rack (3U)		
-	17226LU	-	DS4300 Midrange Disk (6LU)	Rack (3U)		

Notes:
1. Installation may require removing standard devices.
2. All models ship standard with an Ultralight DVD-ROM Ultrabay Enhanced.

Bay	Form Factor	Height	Front Access	Usage
1	2.5	SL	Yes	HDD
2	2.5	SL	Yes	HDD
3	2.5	SL	Yes	HDD
4	2.5	SL	Yes	HDD
5	2.5	SL	Yes	HDD
6	2.5	SL	Yes	HDD
7	5.25	Ultrabay	Yes	Optical

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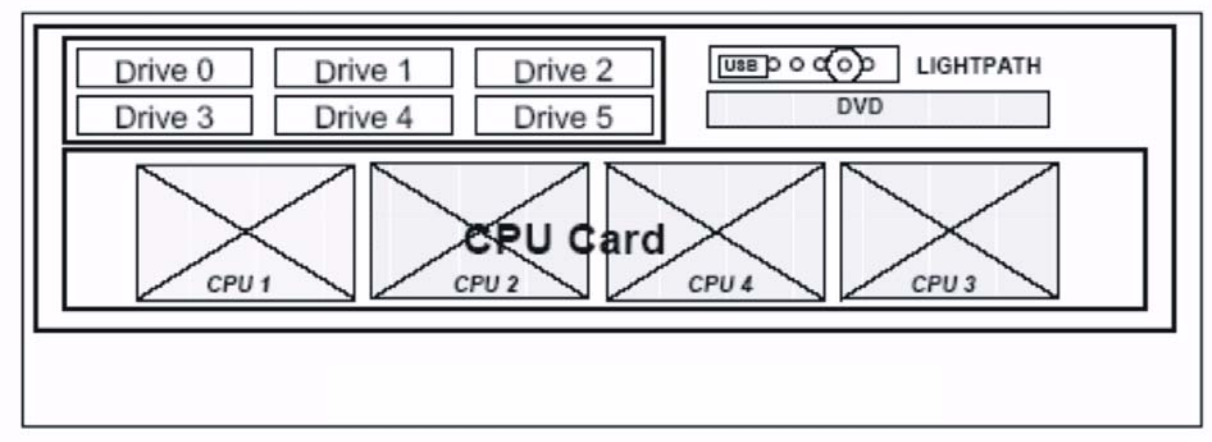

Figure 45. x3950 and x460 front view

System x3950 and xSeries 460 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
Storage Controllers							
39R8819	39R8815	1685	ServeRAID-6M Ultra 320 SCSI Controller 128MB Cache with battery[1]	Full	64-bit/ 133MHz	1-6	-
39R8820	39R8816	1686	ServeRAID-6M Ultra 320 SCSI Controller 256MB Cache with battery[1]	Full	64-bit/ 133MHz	1-6	-
13N2252	13N2249	1656	IBM Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1-6	-
24P0963	24P0960	1650	DS4000 Host Bus Adapter[1]	Half	64-bit/ 66MHz	1-6	-
39R8730	39R8729	1673	ServeRAID 8i SAS Raid Controller[3]	Half	64-bit/ 133MHz	Dedicated Raid Slot	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1-6	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
External Disk Systems and Options							
-	17226xx	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-
-	17421xx	-	DS4400 Midrange Disk System	-	-	-	-
-	17429xx	-	DS4500 Midrange Disk System	-	-	-	-
-	17241xx	-	TotalStorage DS4100 Midrange Disk System (all models)	-	-	-	-
-	2005H08	-	TotalStorage Fibre Channel Switch H08	-	-	-	-
-	2005H16	-	TotalStorage Fibre Channel Switch H16	-	-	-	-
-	2006L10	-	TotalStorage Storage Switch	-	-	-	-
Networking							
33P2970	22P6901	1506	PRO PCI Wireless LAN Adapter	-	-	-	X
30R5205	30R5201	1483	IBM iSCSI Server TX Adapter	Half	64-bit/ 133MHz	1-6	-
30R5505	30R5501	1481	IBM iSCSI Server SX Adapter	Half	64-bit/ 133MHz	1-6	-
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	Half	64-bit/ 133MHz	1-6	-
30R5005	30R5001	1566	10 Gb Ethernet Sr Server Adapter	Half	64-bit/ 266MHz	1-6	-
73P5105	73P5101	1579	10PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	1-6	-
31P9605	31P9601	1512	PRO/1000 MT Server Ethernet Adapter by Intel	-	-	-	-
73P2705	73P2701	1513	PRO/1000 MT Dual Port Server Adapter by Intel	-	-	-	-
39Y6082	39Y6079	1478	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	1-6	-
39Y6091	39Y6088	1487	NetXtreme 1000 S + Ethernet Adapter	Half	64-bit/ 133MHz	1-6	-
39Y6096	39Y6093	2939	NetXtreme 1000 T + Dual Port Ethernet Adapter	Half	64-bit/ 133MHz	1-6	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
32P9296	22P7801	1501	NetXtreme 1000 SX Fiber Ethernet	-	-	-	-
			System Management				
39Y9567	39Y9566	1605	Remote Supervisor Adapter II Slimline Refresh 1	Half	-	-	-
13M7288	73P9341	1603	Remote Supervisor Adapter II Slimline	Half	-	-	-

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
			Storage Controllers				
02R0995	32P0033	1654	ServeRAID-6M Ultra 320 SCSI Controller 128MB Cache with battery	Full	64-bit/ 133MHz	1-6	-
02R0996	02R0988	1653	ServeRAID-6M Ultra 320 SCSI Controller 256MB Cache with battery	Full	64-bit/ 133MHz	1-6	-
24P0963	24P0960	1650	FAStT FC2-133 Host Bus Adapter	Half	64-bit/ 133MHz	1-6	-
13N2232	13N2227	1664	ServeRAID 8i SAS RAID Controller	Half	64-bit/ 133MHz	Dedicated Raid Slot	-
13N2252	13N2249	1656	IBM Ultra320 SCSI Controller 2	Half	64-bit/ 66MHz	1-6	-
			External Disk Systems and Options				
-	172260U	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17226LU	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-
-	172260U	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17226LU	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17226LX	-	DS4300 Midrange Disk (6LX)	-	-	-	-
-	17421RX	-	DS4400 Midrange Disk System	-	-	-	-
-	174290X	-	DS4500 Midrange Disk System	-	-	-	-
-	2005H08	-	TotalStorage Fibre Channel Switch H08	-	-	-	-
-	2005H16	-	TotalStorage Fibre Channel Switch H16	-	-	-	-
-	2006L10	-	TotalStorage Storage Switch	-	-	-	-
			Networking				

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot-Plug Capable
31P9605	31P9601	1512	PRO/1000 MT Server Adapter by Intel	Half	64-bit/ 133MHz	1-6	X
73P3605	73P3601	1507	IBM iSCSI Server Adapter	Half	64-bit	1-6	-
73P4005	73P4001	1509	NetXtreme 1000 SX Fiber Ethernet Adapter 2	Half	64-bit/ 133MHz	1-6	-
73P4105	73P4101	1510	NetXtreme 1000 T Ethernet Adapter 2	Half	64-bit/ 133MHz	1-6	-
73P4205	73P4201	1511	NetXtreme 1000 T Dual Port Ethernet Adapter 2	Half	64-bit/ 133MHz	1-6	-
-	73P5101	1575	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 1333MHz	-	-
-	30R5001	-	10 Gb Ethernet Sr Server Adapter	Half	64-bit/ 266MHz	-	-
Systems Management							
13M7288	73P9341	1603	Remote Supervisor Adapter II Daughter Card	-	-	-	-

Notes:
1. Option 39R8816 and option 39R8815 are supported for external attachment only and not for internal HDDs.
2. The x3950 and x460 support six HDDs, which limits the ServeRAID 8i Controller to reach RAID configurations of 0, 1, 10, 5, 6, 50, 1E, and 5EE, but not RAID 60. Also, for multi-node 4 and 8 chassis configurations (16-32 CPU's), a maximum of 2 ServeRAID 8i adapters are allowed due to PCI device resource limitations.

Slot	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI	Slot length
Dedicated Raid Slot	PCI-X	1	Universal	66MHz	64-bit	N	Special
1	PCI-X 2.0	2	Universal	266MHz	64-bit	Y	Full
2	PCI-X 2.0	4	Universal	266MHz	64-bit	Y	Full
3	PCI-X 2.0	6	Universal	266MHz	64-bit	Y	Full
4	PCI-X 2.0	8	Universal	266MHz	64-bit	Y	Full
5	PCI-X 2.0	A	Universal	266MHz	64-bit	Y	Full
6	PCI-X 2.0	C	Universal	266MHz	64-bit	Y	Full

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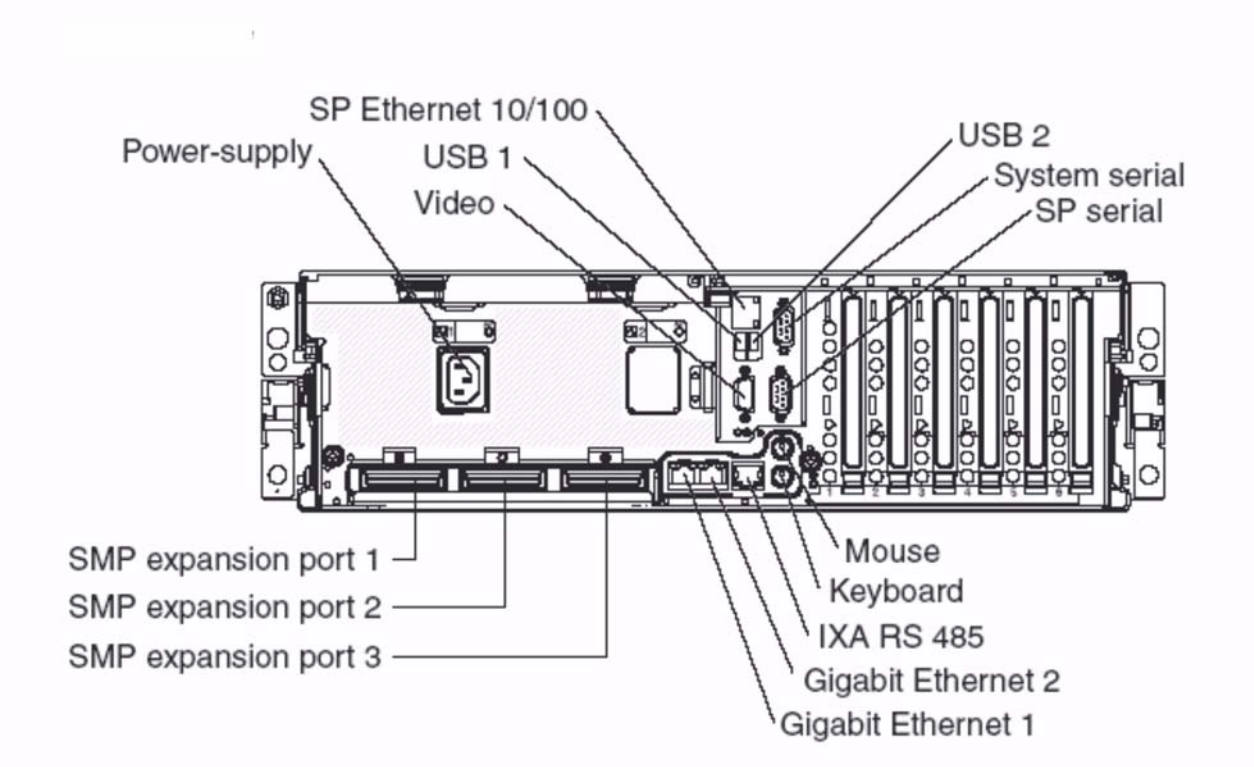

Figure 46. x3950 and x460 rear view

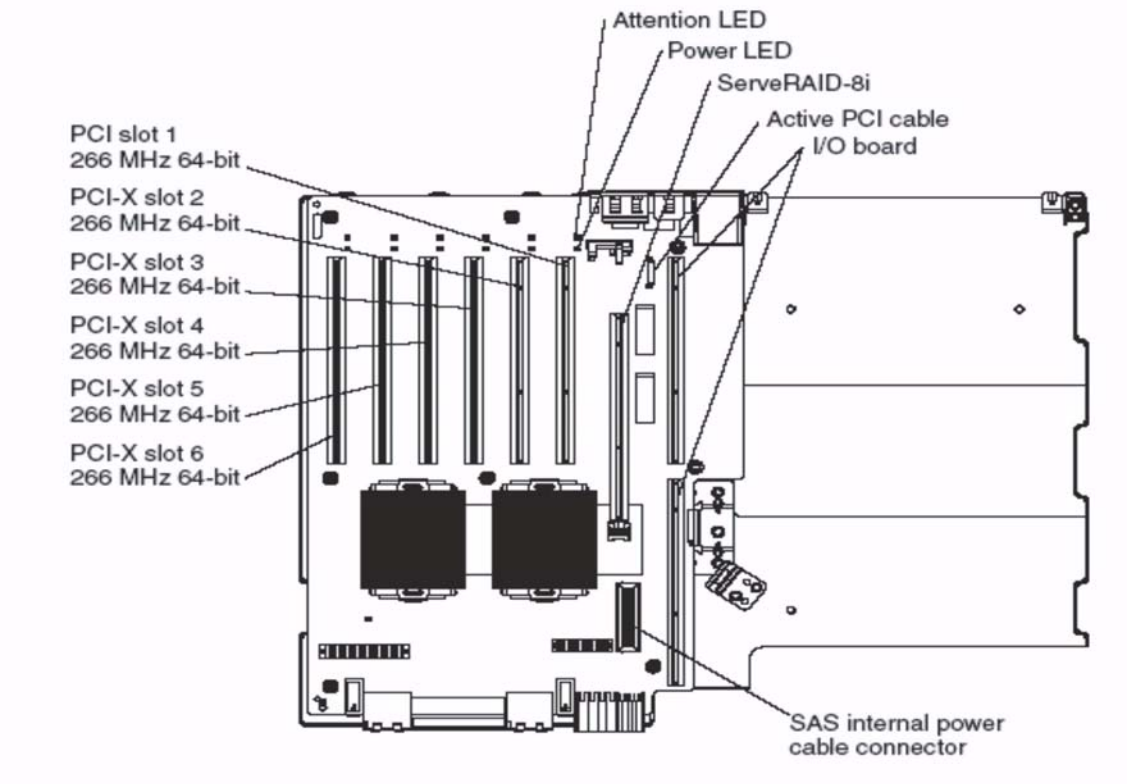

Figure 47. x3950 and x460 system board

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System x3950 and xSeries 460 power and accessories

SBB Number	Option Number	Feature Code	Description
			Uninterruptible Power Supply (UPS)1
-	2130R31	-	UPS3000XHV[2]
-	32P1692	-	UPS Extend Run Battery Pack[2]
			Power Distribution Units
-	26K4241	-	DPI 32A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4242	-	DPI 60A Single Phase C13 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	26K4243	-	DPI 63A Single Phase C13 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4245	-	DPI 32A Three Phase C13 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
-	26K4246	-	DPI 30A Single Phase C13 Enterprise PDU w/ Nema L6-30P (208V) line cord
-	26K4256	-	DPI 60A Single Phase C19 Enterprise PDU w/ IEC309 2P+G (208V) line cord
-	26K4257	-	DPI 63A Single Phase C19 Enterprise PDU w/ IEC309 2P+N+G (250V) line cord
-	26K4259	-	DPI 32A Three Phase C19 Enterprise PDU w/ IEC309 3P+N+G (250V) line cord
-	39Y8923	-	IBM Enterprise C19 3 phase PDU (60a)
39Y8006	39Y8941	6010	IBM Enterprise C13 PDU
-	39Y8942	-	DPI 32 amp/208V 1-phase C13 Enterprise PDU with IEC309 2P+N+Gnd connector
-	39Y8945	-	DPI 30 amp/208V 1-phase C13 Enterprise PDU with Nema L6-30P connector
39Y8008	39Y8948	6060	IBM Enterprise C19 PDU
-	39Y8999	-	DPI 32A 3phase HD C19 PDU w/ IEC 309 32A 3P+N+G (250V)
-	39Y9000	-	DPI 60amp 3phase HD C19 PDU w/ IEC 309 60A 3P+G (208V)

SBB Number	Option Number	Feature Code	Description
			Power[1]
13M7286	13M7413	-	1300W Power Supply
			Uninterruptible Power Supply (UPS)[2]
-	2130R31	-	UPS3000XHV[3]
-	32P1692	-	UPS Extend Run Battery Pack[3]

Notes:
1. For runtimes and UPS attributes, see Appendix C: UPS Runtime Estimate.
2. Height is 2U. See Rack Cabinets and Options section for supported IBM racks.

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SBB Number	Option Number	Feature Code	Description
			Rack/Tower Conversion Kits
39Y8069	32P1636	3772	250mm KVM Conversion Option
-	32P1652	-	1.5M KVM Conversion Option
-	39M2895	-	1.5M USB Conversion Option
39Y7957	39M2894	3758	IBM Virtual Media Conversion Option (VCO)
-	39M2985	-	IBM USB Conversion Option (UCO)
-	39M2896	-	IBM Short KVM Conversion Option (Short KCO)
-	39M2897	-	IBM Long KVM Conversion Option (Long KCO)
			Racks
-	93061RX	-	NetBAY11 Standard Rack Cabinet
-	9306250	-	NetBAY25 Standard Rack Cabinet
-	9306420	-	NetBAY42 Standard Rack Cabinet
-	9307-2SX	-	IBM 25U Standard Rack
-	9307-4EX	-	IBM 42U Standard Rack Extension
-	9307-4SX	-	IBM 42U Standard Rack
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet (EX)
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93061RX	-	NetBAY11 Standard Rack
-	93072RX	-	IBM 25U S2 Standard Rack
-	93074RX	-	IBM 42U S2 Expansion Rack
-	93074XX	-	IBM 42U S2 Standard Rack
-	93084RX	-	NetBAY42 Enterprise Rack
-	93084XX	-	NetBAY42 Enterprise Expansion Rack
			Rack Console Connectivity[1]
-	1735L04	-	NetBAY Local Console Manager
-	1735R16	-	NetBAY Remote Console Manager
-	17351LX	-	1x8 Local Console Manager
-	17352LX	-	2x16 Local Console Manager
-	17351GX	-	2x8 Local Console Manager
-	31R3130	-	IBM 3M Console Switch Cable (PS/2)
-	17235RX	-	IBM Rack Keyboard Tray
-	17352GX	-	IBM Global 2x16 Console Manager (GCM2)
-	17354GX	-	Global 4x16 Console Manager (GCM4)
-	09N4293	-	NetBAY 7ft Console Cable Set
-	94G7447	-	NetBAY 12ft Console Cable Set
			Monitors
-	90P0717	-	L150p 15" TFT Monitor (Hybrid)

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SBB Number	Option Number	Feature Code	Description
-	90P0721	-	IBM L170p 17" TFT Monitor (Hybrid)
-	90P0726	-	IBM C170 17" CRT Monitor
-	49387NU	-	IBM C117 17" CRT Monitor
-	494215U	-	IBM T115 15" TFT Monitor
-	494317U	-	IBM T117 17" TFT Monitor
-	17233RX	-	IBM 1U 15in Flat Panel Monitor Console Kit
-	17231RX	-	IBM 1U 17in Flat Panel Monitor Console Kit w/Optical Drive Bay
			Keyboard and Mouse
33P2979	33L3252	8907	SpaceBall 3D Input Device (Business Black)
13N3224	39M7228	8877	IBM USB UltraNav Keyboard - USB
40K9490	40K9584	8750	IBM Preferred Pro Keyboard - USB - English
42C1473	40K5372	8693	IBM Keyboard with Integrated Pointing Device - USB - US English
40K9491	40K9200	8912	IBM 2 Button Optical Wheel Mouse - Black - USB
40K9492	40K9201	8913	IBM 3 Button Optical Mouse - Black - USB
0008915	40K9202	8915	3D SpacePilot Input Device
-	17235RX	-	IBM Rack Keyboard Tray
25K9323	90P0740	8906	IBM Sleek 2-Button Mechanical Ball Mouse - PS/2
02R3434	90P0741	8903	IBM Scrollpoint Pro 800 DPI Optical Mouse - USB
02R3486	90P0742	8904	IBM Scrollpoint 800 DPI Optical Mouse - USB & PS/2
40K9491	40K9200	8912	IBM Optical Wheel Mouse - USB
			Other Accessories
-	-	-	-

SBB Number	Option Number	Feature Code	Description
			Rack Console Connectivity[1]
-	1735L04	-	NetBAY Local Console Manager
-	1735R16	-	NetBAY Remote Console Manager
-	17351LX	-	1x8 Local Console Manager
-	17352LX	-	2x16 Local Console Manager
-	17351GX	-	2x8 Local Console Manager
-	17352GX	-	2x16 Global Console Manager
-	17354GX	-	4x16 Global Console Manager
			Monitors
-	90P0717	-	L150p 15" business black flat panel LCD monitor
			Keyboard and Mouse

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SBB Number	Option Number	Feature Code	Description
-	25R6968	-	Preferred Pro Full-size Keyboard - 104 Keys - PS/2 (Business Black)
-	90P0777	-	USB Keyboard Enhanced Performance Keyboard
-	90P0743	-	USB Optical Wheel Mouse
-	90P0742	-	Optical 3-button ScrollPoint Mouse - 800dpi - PS/2 & USB (Business Black)
Other Accessories			
-	-	-	-

Notes:
1. Refer to the Rack Console Options section for information regarding console connectivity using these options.

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System x3950 and xSeries 460 tape options

SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
Tape Drives							
71P9199	59P6736	5360	160/320 GB SDLT Internal SCSI Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	0034B0X 45594UX
Tape Autoloaders							
-	36232LX	-	LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	SDLT 320 1x8 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
External Tape Libraries							
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-
External Tape Enclosures							
-	45591UX	-	1U xSeries Tape Enclosure Rack or Tower	-	-	-	-
-	45594UX	-	4U Rackmount SCSI Tape Drive Enclosure	-	Ultra2 (16-bit)	4U Rack	-
-	0034B0X	-	NetBAY Tape Enclosure (Rack Mount)	-	-	-	-

SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
Tape Drives							
-	59P6736	-	160/320 GB SDLT Internal SCSI Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	0034B1X
-	59P6744	-	200/400GB LTO FH Tape Drive	-	Ultra2 (16-bit)	133mm (5.25in) FH	0034B0X
Tape Autoloaders							
-	36232LX	-	LTO2 1x8 Tape Autoloader	-	Ultra160 (16-bit)	2U Rack	-
-	36232SX	-	SDLT 320 1x8 Tape Autoloader	-	Ultra320 (16-bit)	2U Rack	-
External Tape Libraries							
-	4560SLX	-	SDLT/LTO Modular Tape Library	-	Ultra2 (16-bit)	5U Rack	-
External Tape Enclosures							

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SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
-	4559FHX	-	2U Full High Stand Alone SCSI Tape Drive Enclosure	-	Ultra160 (16-bit)	Desktop or Rack Shelf (4.41in tall)	-
-	45594UX	-	4U Rackmount SCSI Tape Drive Enclosure	-	Ultra2 (16-bit)	4U Rack	-
-	0034B0X	-	NetBAY Tape Enclosure (Rack Mount)	-	-	-	-

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Chapter 21. Datacenter solution program

The IBM Datacenter Solution Program is a comprehensive set of hardware, software and service offerings intended to deliver true enterprise computing solutions based on the Microsoft® Windows® Server 2003 Datacenter Edition operating systems. xSeries 460 servers and IBM Server x3950 support Datacenter Solutions. The xSeries 460 and IBM Server x3950 both support up to a 32 processor Datacenter solution.

IBM offers two separate Datacenter solutions. The Datacenter Scalable Offering for "system" certified solutions and the Datacenter High Availability Program for end to end Datacenter-certified cluster configurations including storage. The IBM Datacenter Solutions include Microsoft-certified hardware, Windows Datacenter Server operating systems and optional onsite services and remote support offerings through IBM Global Services (IGS) or xSeries Lab Services.

In addition to the configuration information on the following pages, the IBM Datacenter Solution Program includes the following software and optional services. The service offerings must be ordered separately. An Expert Solutions Assurance Review (SAR) must be conducted by IBM or your IBM business partner to ensure that the configuration being ordered is complete, prior to placing any orders.

The product content described herein is consistent worldwide; however, there may be some variance in IBM part numbers outside of the US and Canada. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Datacenter customers purchasing 8 way thru 32 way Datacenter solutions with intentions of later partitioning their Datacenter servers into smaller servers should order more than one x460 or x3950 server in their original purchase. The Datacenter OS is shipped with the x460 or the x3950 server only and not the MXE460 or the x3950 E. The MXE460 or the x3950 E Expansion unit includes only the Datacenter OS license. For example, if a customer purchasing a 16 way stand-alone server would like to later partition the server into 2 - 8 way servers, they should purchase 2 x460 or x3950 servers and 2 MXE460 or x3950 E Expansion units.

US government export license

Certain x460 and x3950 Datacenter solutions require a US Government Export License when sold in Tier 3 countries. x3950 and x460 Datacenter "single core processor" solutions containing greater than 16 processors require a **US Government Export License** when offered in Tier 3 countries. x460 or x3950 Datacenter "dual core" processor solutions containing 16 processors and greater require a US Government Export License when sold in Tier 3 countries. IMPORTANT: Proof of obtaining the appropriate U.S. Government Export License must exist before ordering any of the above Datacenter solutions. To support 16 way and greater Datacenter offerings, one Scalability Enablement/Memory Adapter (P/N 40K2450) is required per chassis

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Scalability/enablement memory card option

x460 or x3950 Datacenter solutions containing 16 processors or greater require **one** Scalability Enablement/Memory Adapter (P/N 40K2450) **per chassis**. Proof of the appropriate U.S. Government Export License for sales in Tier 3 countries is required before this option can be obtained from IBM.

Software

Microsoft Windows Server 2003 R2, Datacenter Edition or Microsoft Windows Server 2003 R2, Datacenter x64 Edition is included with the designated x460 or x3950 Datacenter servers. x460 or x3950 Datacenter High Availability offerings include the appropriate IBM certified Datacenter OS preload and drivers installed in manufacturing (4 way license). x460 or x3950 Datacenter Scalable offerings include the IBM certified "Drop in the box" MS Datacenter OS to be installed post delivery (4 way license). MS Datacenter solutions/licenses are offered to support 4 way through 32 way solutions. The MXE-460 or x3950 E Datacenter Expansion Unit has no physical Datacenter OS installed or shipped separately. Each MXE-460 or x3950 E is shipped with a Certificate of Authenticity (COA) for a 4-way Datacenter license. (Five Client Access Licenses (CALs) are included. Additional CALs must be purchased separately from Microsoft)[1]

Standard services

- Solutions Assurance Review[2]
- Custom configurations and software preloads installed and tested in manufacturing for the IBM Datacenter High Availability Program
- Limited Warranty service with 24x7 same day response[3]

IBM optional support services

- Contracted Onsite installation and Integration by IBM
- IBM Software Update Subscription for Microsoft Windows Datacenter[4]
- Advanced Support for Mission Critical Systems (US)
- Support Line (base software support outside the US and where Advanced Support is not available)
- High Availability Services[5]
- Warranty upgrade (24x7x2 hour response)
- Testing Services--proof of concept, assessment, design and planning
- Custom services for unique requirements provided by IGS

Notes:

1. IBM makes no representations or warranties regarding non-IBM products or services. These products are offered and warranted by third parties.
2. IBM provides this service standard for all Datacenter sales directly through IBM. Business Partners will also perform this service but may choose to charge a fee.
3. For information on IBM's Statement of Limited Warranty, call 1-800-772-2227 or contact your IBM representative or reseller. Copies are available upon request. International Warranty Service available in those countries where the particular product is sold by IBM or IBM Business Partners. With respect to onsite service, IBM sends a technician after attempting to resolve the problem remotely
4. Optional Software Update Subscription (SUS) services ensure that customers can upgrade to future Microsoft Datacenter operating system releases. SUSs for the IBM Datacenter High Availability Program include operating system upgrades and IBM maintenance updates. The IBM Datacenter Scalable Offering includes SUSs for operating system upgrades only, maintenance is available from the Microsoft Support Web site. IBM Datacenter SUSs must be renewed annually from the date of purchase to remain eligible for operating system upgrades and maintenance. IBM will provide Operating System Upgrades and Maintenance as applicable as long as upgrade and maintenance support is provided by Microsoft.
5. The High Availability Services are optional offerings that can help improve critical IT systems availability, moving closer to a continuous operations environment by reducing unplanned outages.

Note: A Datacenter node represents a single instance of the operating system, regardless of the number of chassis in the configuration.

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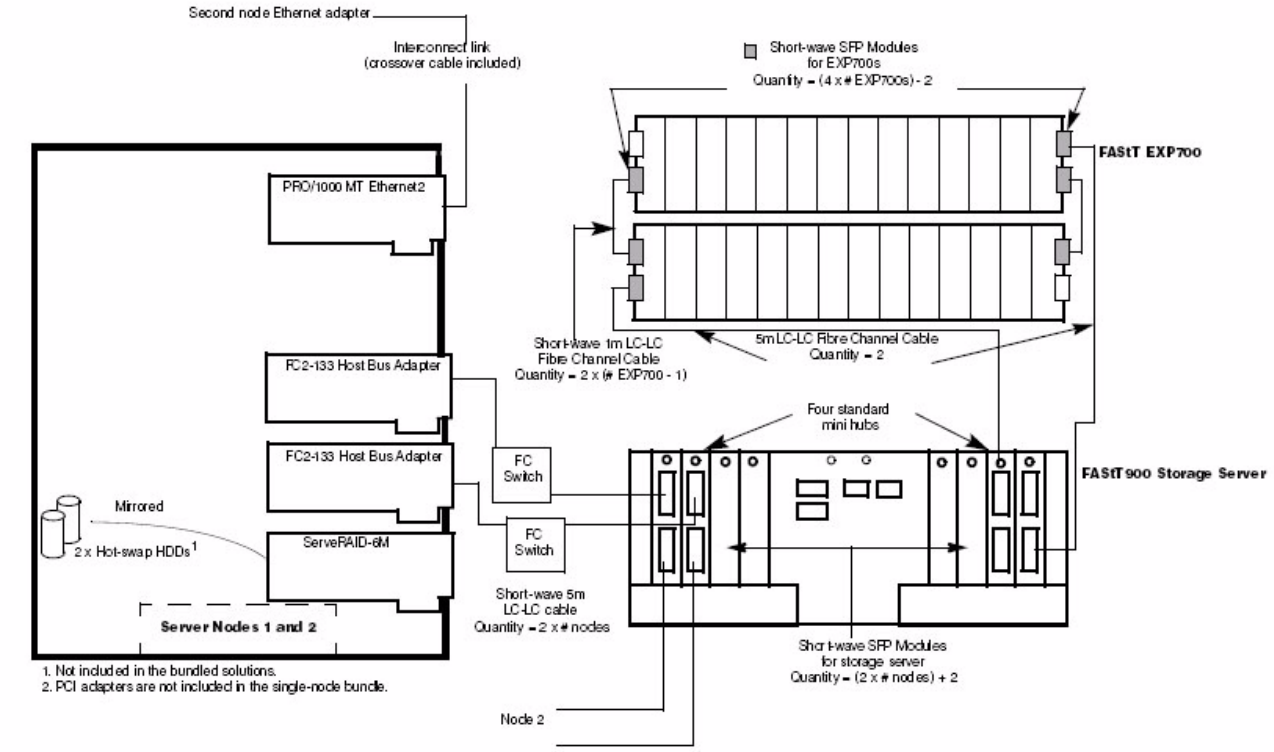
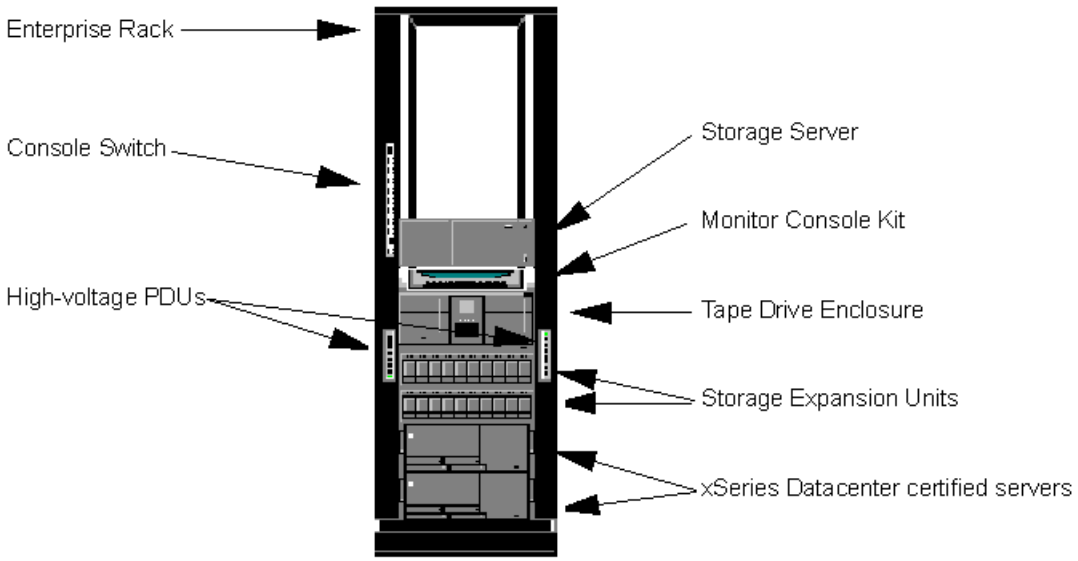
Datacenter solutions





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x3950 and x460 scalable diagrams

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

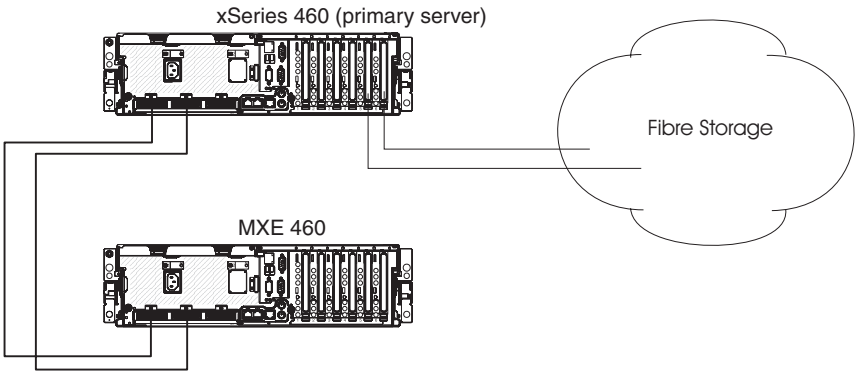

Figure 48. x3950 and x460 Single Node 8-way Configuration

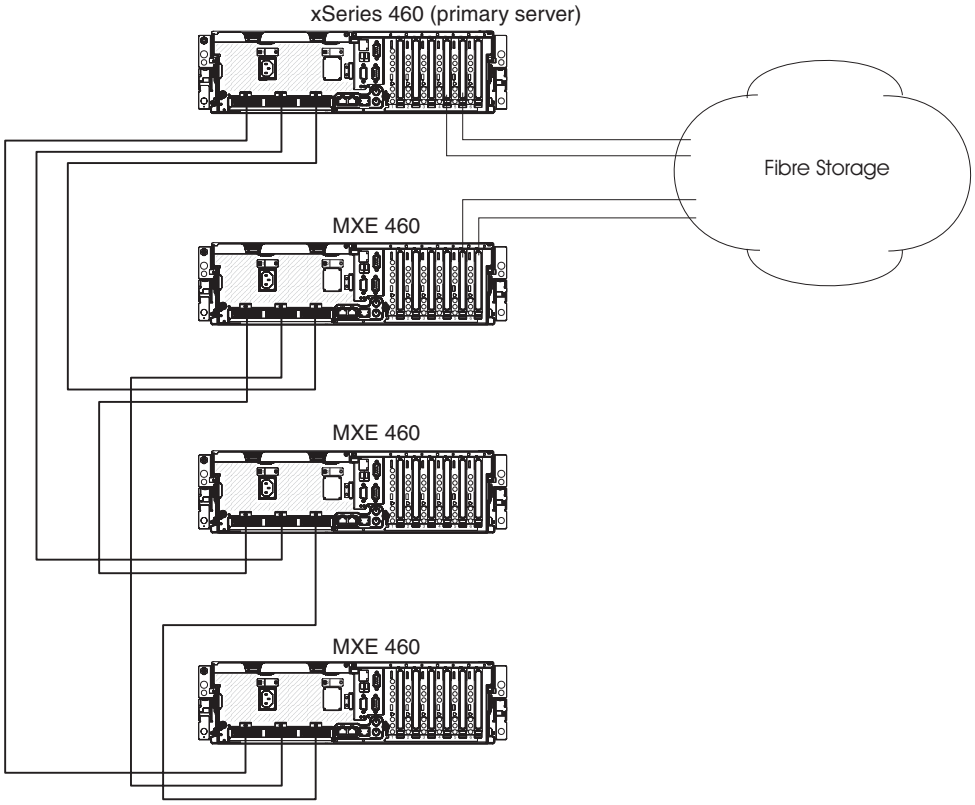

Figure 49. x3950 and x460 Single Node 16-way Configuration

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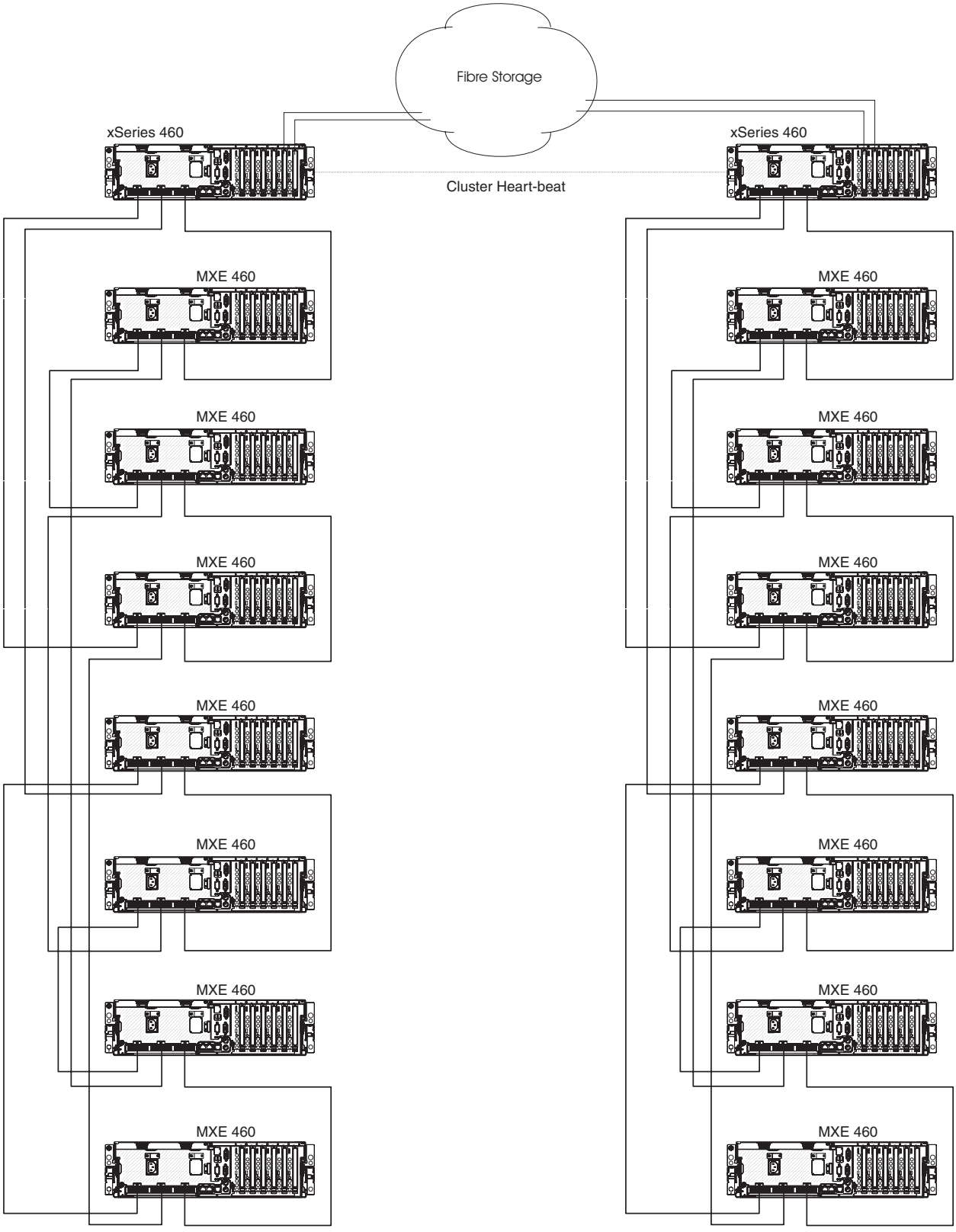

Figure 50. 2 Node, 32-way Configuration

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Single node Datacenter high availability solutions

The Datacenter High Availability (HA) Program Offering delivers a fully configured, Datacenter-certified, IBM-installed hardware and operating system solution for a tightly-controlled high availability environment.

Table 47. Single Node High Availability Configurations (4, 8, 16 and 32-way)[1]

The Datacenter HA Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.					
Option Number	**Description**	**Total Qty 4-way**	**Total Qty 8-way**	**Total Qty 16-way**	**Total Qty 32-way**
	Select one of the following models[2, 3]				
	Single Core Processors				
88722AY	4 x 3.0GHz/667MHz Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	1	1	1	1
88723AY	4 x 3.33GHz/667MHz Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	1	1	1	1
88722BY	4 x 3.0GHz/667MHz Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	1	1	1	1
88723BY	4 x 3.33GHz/667MHz Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	1	1	1	1
	Dual Core Processors				
88725AY	4 x Dual Core 2.66GHz/667MHz-2MB Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	1	1	1	1
88726AY	4 x Dual Core 3.0GHz/667MHz-4MB Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	1	1	1	1
88725BY	4 x Dual Core 2.66GHz/667MHz-2MB Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	1	1	1	1
88726BY	4 x Dual Core 3.0GHz/667MHz-4MB Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	1	1	1	1
88727AY	4 x Dual Core 2.67GHz/667MHz-2x1MB L2 Cache Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	1	1	1	1
88728AY	4 x Dual Core 3.0GHz/667MHz-2x2 MB L2 Cache Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	1	1	1	1
88727BY	4 x Dual Core 2.67GHz/667MHz-2x1MB L2 Cache Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	1	1	1	1
88728BY	4 x Dual Core 3.0GHz/667MHz-2x2 MB L2 Cache Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	1	1	1	1
	Select appropriate expansion enclosure[4]				
88741AY	x3950 E with 4-way 32-bit HA COA	0	1	3	7
88741BY	x3950 E with 4-way 64-bit HA COA	0	1	3	7
88742AY	x3950 E with Dual Core 4-way 32-bit HA COA	0	1	3	7
88742BY	x3950 E with Dual Core 4-way 64-bit HA COA	0	1	3	7
88743AY	3950 E with Dual Core 4-way 32-bit HA COA	0	1	3	7
88743BY	3950 E with Dual Core 4-way 64-bit HA COA	0	1	3	7

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Table 47. Single Node High Availability Configurations (4, 8, 16 and 32-way)[1] (continued)

The Datacenter HA Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.					
Option Number	**Description**	**Total Qty 4-way**	**Total Qty 8-way**	**Total Qty 16-way**	**Total Qty 32-way**
	Scalability kit[5]				
13M7414	2.3m Scalability Cable	0	2	3	6
13M7416	2.9m Scalability Cable	0	0	3	6
	Select appropriate processor[6, 7]				
13N0714	3.0GHz/667MHz-8MB L3 Cache Xeon Processor MP	0	4	12	28
13N0713	3.33GHz/667MHz-8MB L3 Cache Xeon Processor MP	0	4	12	28
25R8941	Dual Core 2.66GHz/667MHz-2MB L2 Cache Xeon Processor MP	0	4	12	28
25R8942	Dual Core 3.0GHz/667MHz-4MB L2 Cache Xeon Processor MP	0	4	12	28
40K2522	Dual Core 2.67GHz/667MHz-2MB L2 Cache Xeon Processor MP[8]	0	4	12	28
40K2523	Dual Core 3.0GHz/667MHz-4MB L2 Cache Xeon Processor MP[8]	0	4	12	28
	Select memory[9, 10]	**Min= 4GB**	**Min= 8GB**	**Min= 16GB**	**Min= 32GB**
73P2866	2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-
73P2867	4GB (2x2GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-
30R5145	8GB (2x4GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-
39M5809	2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)[8]	-	-	-	-
39M5812	4GB (2x2GB Kit - 8GB Max Memory) PC2-3200 CL3 Double Rank ECC DDR2 SDRAM RDIMM[8]	-	-	-	-
	Select the following as required				
13M7409	4-DIMM Memory Expansion Card[9, 10, 11]	-	-	-	-
41Y5000	4-DIMM DDR2 Memory Card[8, 9, 10, 11]	-	-	-	-
41Y5004	Scalability Enablement/Memory Adapter[12]	1	2	4	8
41Y5005	Dual Core X3 Upgrade Kit[13]	1	2	4	8
	Select the following[14]		**Min=1**	**Min=1**	**Min=1**
39R8729	ServeRAID-8i SAS Controller	1	-	-	-
	Select HDDs[15]	**Min=2**	**Min=2**	**Min=2**	**Min=2**
26K5654	36.4GB 10K rpm 2.5" SAS HS HDD	-	-	-	-
26K5655	73.4GB 10K rpm 2.5" SAS HS HDD	-	-	-	-
40K1051	36GB 10K 2.5" SAS Hot-Swap HDD[8]	-	-	-	-
40K1052	73GB 10K 2.5" SAS Hot-Swap HDD[8]	-	-	-	-
	Select the following[16]	**Min=2**	**Min=2**	**Min=2**	**Min=2**
24P0960	DS4000 Host Bus Adapter	-	-	-	-

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Table 47. Single Node High Availability Configurations (4, 8, 16 and 32-way)[1] (continued)

The Datacenter HA Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.					
Option Number	**Description**	**Total Qty 4-way**	**Total Qty 8-way**	**Total Qty 16-way**	**Total Qty 32-way**
	Select the following[17]				
-	Ethernet Cable	1	2	4	8
Note:	Refer to the Required Service Offerings section at the end of the Datacenter section for any manufacturing install fees that may apply.				
Note:	A node represents a single instance of the operating system. For example, a single-node, 16-way configuration will consist of one x3950 and three x3950 Es.				

Notes:

1. All final customer configurations and solutions require IBM Solution Assurance Approval.
2. The Datacenter OS comes preloaded on each High Availability (HA) DC model.
3. Select one model to serve as the primary server. The OS will reside on this server.
4. Select based on primary server selected. x3950 E COA must match the selected x3950s OS.
5. Order both cables in quantities shown per configuration. Connects chassis in a node together for scalability.
6. x3950 Datacenter models ship standard with the maximum number of processors. The x3950 Es OS have zero processors standard.
7. All processors in the solution must match. Select processors for the x3950 E based on processors installed in the primary x3950. Select in quantities of four per x3950 E.
8. This option is applicable for models 8872-7AY, 8872-7BY, 8872-8AY, 8872-8BY, 8874-3AY and 8874-3BY only.
9. HA solution x3950 and x3950 E Datacenter models have zero DIMMs standard. Minimum of two DIMMs (one option kit) equating to 4GB required per chassis. Each chassis must contain the same memory configuration.
10. All Datacenter models ship standard with two memory cards. Each memory card supports four DIMMs. Max of four cards are supported per chassis.
11. Memory can be installed using one of two methodologies: Performance installation or cost-effective installation. Performance installation populates one pair of DIMMs per memory card, until four cards are installed, before adding a second pair of DIMMs to a card. Cost-effective installation fully populates each memory card before adding additional cards.
12. Single core Datacenter solutions containing greater than 16 processors require one Scalability Enablement/Memory Adapter (P/N 41Y5004) per chassis. x3950 E dual core Datacenter solutions containing 16 processors and greater require one Scalability Enablement/Memory Adapter (P/N 41Y5004) per chassis. Proof of the appropriate U.S. Government Export License must exist before this option can be ordered or shipped to Tier 3 countries. In addition to providing scalability support, this adapter supports four memory DIMMs and can be used in place of one of the standard, four-slot memory adapters.
13. This option kit includes the components necessary to upgrade systems that currently have single-core Intel Xeon MP processors installed to support the dual-core Intel Xeon MP processors. Processors are not included in the kit and must be purchased separately. Once the system is upgraded, the new system model type must be registered with IBM. Directions for registering the new system model type are included in the option.
14. A maximum of two ServeRAID 8i controllers is allowed per Datacenter node (each instance of the operating system). One of the two ServeRAID 8i controllers must be installed in the x3950. The other ServeRAID 8i controller can be installed in an x3950 E to fit your configuration.
15. Minimum two identical HDDs required on primary server (x3950) for OS. HDDs are optional for x3950 E. Max = 6 HDDs per chassis.
16. Minimum two required per primary server (x3950) for load balancing and redundancy. Optional for x3950 E.
17. One required per chassis for service processor interconnection. The service processors of all chassis must be connected together via an ethernet network.

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Multi-node Datacenter high availability solutions

The Datacenter High Availability (HA) Program Offering delivers a fully configured, Datacenter-certified, IBM-installed hardware and operating system solution for a tightly-controlled high availability environment.

Table 48. Multi-Node Configurations (two and four node examples)[1, 2]

The Datacenter HA Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.							
		Total Quantities					
Option Number	**Description**	**2 Node 8-way**	**4 Node 8-way**	**2 Node 16-way**	**4 Node 16-way**	**2 Node 32-way**	**4 Node 32-way**
	Select one of the following[3, 4]						
	Single Core Processors						
88722AY	4 x 3.0GHz/667MHz Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	2	4	2	4	2	4
88723AY	4 x 3.33GHz/667MHz Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	2	4	2	4	2	4
88722BY	4 x 3.0GHz/667MHz Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	2	4	2	4	2	4
88723BY	4 x 3.33GHz/667MHz Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	2	4	2	4	2	4
	Dual Core Processors						
88725AY	4 x Dual Core 2.66GHz/667MHz-2MB Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	2	4	2	4	2	4
88726AY	4 x Dual Core 3.0GHz/667MHz-4MB Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	2	4	2	4	2	4
88725BY	4 x Dual Core 2.66GHz/667MHz-2MB Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	2	4	2	4	2	4
88726BY	4 x Dual Core 3.0GHz/667MHz-4MB Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	2	4	2	4	2	4
88727AY	4 x Dual Core 2.67GHz/667MHz-2x1MB Cache Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	2	4	2	4	2	4
88728AY	4 x Dual Core 3.0GHz/667MHz-2x2 MB L2 Cache Xeon MP, 0MB Mem, open-bay, 32-bit WS03, HA DC	2	4	2	4	2	4
88727BY	4 x Dual Core 2.67GHz/667MHz-2x1MB L2 Cache Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	2	4	2	4	2	4
88728BY	4 x Dual Core 3.0GHz/667MHz-2x2 MB L2 Cache Xeon MP, 0MB Mem, open-bay, 64-bit WS03, HA DC	2	4	2	4	2	4

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Table 48. Multi-Node Configurations (two and four node examples)[1, 2] (continued)

The Datacenter HA Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.							
		Total Quantities					
Option Number	**Description**	**2 Node 8-way**	**4 Node 8-way**	**2 Node 16-way**	**4 Node 16-way**	**2 Node 32-way**	**4 Node 32-way**
	Select appropriate expansion enclosure[5]						
88741AY	x3950 E with 4-way 32-bit HA COA	2	4	6	12	14	28
88741BY	x3950 E with 4-way 64-bit HA COA	2	4	6	12	14	28
88742AY	x3950 E with Dual Core 4-way 32-bit HA COA	2	4	6	12	14	28
88742BY	x3950 E with Dual Core 4-way 64-bit HA COA	2	4	6	12	14	28
88743AY	3950 E with Dual Core 4-way 32-bit HA COA	2	4	6	12	14	28
88743BY	3950 E with Dual Core 4-way 64-bit HA COA	2	4	6	12	14	28
	Scalability kit[6]						
13M7414	2.3m Scalability Cable	4	8	6	12	12	24
13M7416	2.9m Scalability Cable	0	0	6	12	12	24
	Select appropriate processor[7, 8]						
13N0714	3.0GHz/667MHz-8MB L3 Cache Xeon Processor MP	8	16	24	48	56	112
13N0713	3.33GHz/667MHz-8MB L3 Cache Xeon Processor MP	8	16	24	48	56	112
25R8941	Dual Core 2.66GHz/667MHz-2MB L2 Cache Xeon Processor MP	8	16	24	48	56	112
25R8942	Dual Core 3.0GHz/667MHz-4MB L2 Cache Xeon Processor MP	8	16	24	48	56	112
40K2522	Dual Core 2.67GHz/667MHz-2MB L2 Cache Xeon Processor MP[9]	8	16	24	48	56	112
40K2523	Dual Core 3.0GHz/667MHz-4MB L2 Cache Xeon Processor MP[9]	8	16	24	48	56	112
	Select Memory[10, 11]	**Min=16 GB**	**Min=32 GB**	**Min=32 GB**	**Min=64 GB**	**Min=32 GB**	**Min=64 GB**
73P2866	2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-	-	-
73P2867	4GB (2x2GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-	-	-
30R5145	8GB (2x4GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-	-	-
39M5809	2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)[9]	-	-	-	-	-	-
39M5812	4GB (2x2GB Kit - 8GB Max Memory) PC2-3200 CL3 Double Rank ECC DDR2 SDRAM RDIMM[9]	-	-	-	-	-	-

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Table 48. Multi-Node Configurations (two and four node examples)[1, 2] (continued)

The Datacenter HA Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.							
		Total Quantities					
Option Number	**Description**	**2 Node 8-way**	**4 Node 8-way**	**2 Node 16-way**	**4 Node 16-way**	**2 Node 32-way**	**4 Node 32-way**
	Select the following as required						
13M7409	4-DIMM Memory Expansion Card[10, 11, 12]	-	-	-	-	-	-
41Y5000	4-DIMM DDR2 Memory Card[9, 10, 11, 12]	-	-	-	-	-	-
41Y5004	Scalability Enablement/Memory Adapter[13]	4	8	8	16	16	32
41Y5005	Dual Core X3 Upgrade Kit[14]	4	8	8	16	16	32
	Select the following[15]	**Min=2**	**Min=4**	**Min=2**	**Min=4**	**Min=2**	**Min=4**
39R8729	ServeRAID-8i SAS Controller	-	-	-	-	-	-
	Select HDDs[16]	**Min=2**	**Min=4**	**Min=2**	**Min=4**	**Min=2**	**Min=4**
26K5654	36.4GB 10K rpm 2.5" SAS HS HDD	-	-	-	-	-	-
26K5655	73.4GB 10K rpm 2.5" SAS HS HDD	-	-	-	-	-	-
40K1051	36GB 10K 2.5" SAS Hot-Swap HDD[9]	-	-	-	-	-	-
40K1052	73GB 10K 2.5" SAS Hot-Swap HDD[9]	-	-	-	-	-	-
	Select the following[17]	**Min=2**	**Min=4**	**Min=2**	**Min=4**	**Min=2**	**Min=4**
24P0960	DS4000 Host Bus Adapter	-	-	-	-	-	-
	Select the following[18]						
-	Customer-supplied Ethernet cable	4	8	8	16	16	32
Note: Refer to the Required Service Offerings section at the end of the Datacenter section for any manufacturing install fees that may apply.							
Note: A node represents a single instance of the operating system. For example, a single-node 16-way configuration will consist of one x3950 or three x3950 Es. A two-node 16-way configuration will consist of two x3950s, and six x3950 Es.							

Notes:

1. All final customer configurations and solutions require IBM Solution Assurance Approval.
2. Multi-node configurations are essentially single-node configurations clustered together. Hardware/software that would be necessary for clustering is not covered here.
3. The Datacenter OS comes preloaded on each High Availability (HA) DC model.
4. Select one model to serve as the primary server. The OS will reside on this server.
5. Select based on primary server selected. x3950 E COA must match the selected x3950 OS.
6. Order both cables in quantities shown per configuration. Connects chassis in a node together.
7. x3950 Datacenter models ship standard with the maximum number of processors. The x3950 Es have zero processors standard.
8. All processors in the solution must match. Select processors for x3950 E are based on the processor installed in the primary x3950.
9. This option is applicable for models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY only.
10. HA solution x3950 and x3950 E Datacenter models have zero DIMMs standard. Minimum of two DIMMs (one option kit) equating to 4GB required per chassis. Each chassis must contain the same memory configuration.
11. All Datacenter models (x3950 and x3950 E) ship standard with two memory cards. Each memory card supports four DIMMs. Max of four cards are supported per chassis.

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12. Memory can be installed using one of two methodologies: Performance installation or cost-effective installation. Performance installation populates one pair of DIMMs per memory card, until four cards are installed, before adding a second pair of DIMMs to a card. Cost-effective installation fully populates each memory card before adding additional cards.
13. Single core Datacenter solutions containing more than 16 processors require one Scalability Enablement/Memory Adapter (P/N 41Y5004) per chassis. x3950 E dual core Datacenter solutions containing 16 processors and greater require one Scalability Enablement/Memory Adapter (P/N 41Y5004) per chassis. Proof of the appropriate U.S. Government Export License must exist before this option can be ordered or shipped to Tier 3 countries. In addition to providing scalability support, this adapter supports four memory DIMMs and can be used in place of one of the standard, four-slot memory adapters.
14. This option kit includes the components necessary to upgrade systems that currently have single-core Intel Xeon MP processors installed to support the dual-core Intel Xeon MP processors. Processors are not included in the kit and must be purchased separately. Once the system is upgraded, the new system model type must be registered with IBM. Directions for registering the new system model type are included in the option.
15. A maximum of two ServeRAID 8i controllers is allowed per Datacenter node (each instance of the operating system). One of the two ServeRAID 8i controllers must be installed in the x3950. The other ServeRAID 8i controller can be installed in an x3950 E to fit your configuration.
16. Minimum two identical HDDs required per node on primary server (x3950) for OS. HDDs are optional for x3950 E. Max = 6 HDDs per chassis.
17. Minimum two required per node on primary server (x3950) for load balancing and redundancy. Optional for x3950 E.
18. One required per chassis for service processor interconnection. The service processors of all chassis must be connected together via an ethernet network.

Datacenter high availability solution additional options

Table 49. Datacenter High Availability Solution Additional Options[1]

Additional, certified options for use with IBM Datacenter solutions.		
Option Number	**Description**	**Comment**
	Disk Systems	Can be attached to both x3950 and x3950 E.
181582H	TotalStorage DS4800 Midrange Disk System	
181584H	TotalStorage DS4800 Midrange Disk System	
181588H	TotalStorage DS4800 Midrange Disk System	
	I/O Controllers	
31P9601	PRO/1000 MT Server Ethernet Adapter by Intel	Can be installed in models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
73P2701	PRO/1000 MT Dual Port Server Ethernet Adapter by Intel	Can be installed in models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
73P4001	NetXtreme 1000SX+ Fiber Ethernet Adapter	Can be installed in models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
73P4101	NetXtreme 1000 T + Ethernet Adapter	Can be installed in models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
73P4201	NetXtreme 1000 T + Dual Port Ethernet Adapter	Can be installed in models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
39Y6088	NetXtreme 1000 SxG Ethernet Adapter	Can be installed in models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY

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Table 49. Datacenter High Availability Solution Additional Options[1] (continued)

Additional, certified options for use with IBM Datacenter solutions.		
Option Number	**Description**	**Comment**
39Y6079	NetXtreme 1000 TxG Ethernet Adapter	Can be installed in models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY
39Y6093	NetXtreme 1000 TxG Dual Port Ethernet Adapter	Can be installed in models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY
	Racks	
93084RX	NetBAY42 Enterprise Rack Cabinet	Compatible with models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet	Compatible with models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
93084RX	NetBAY42 ER Enterprise Rack Cabinet - 42u standalone/primary	Compatible with models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY
93084XX	NetBAY42 EX Enterprise Expansion Cabinet - 42u expansion	Compatible with models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY
	Software Update Subscriptions[2]	Note: these are 4 processor subscriptions. 8-way configurations will need quantity two, 16-way will need four, etc.
4816GAX	Software Update Subscription for Microsoft Windows Server 2003 Datacenter Edition, 32-bit, 4 processor, High Availability	Compatible with models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
4816HAX	Software Update Subscription for Microsoft Windows Server 2003 Datacenter Edition, 64-bit, 4 processor, High Availability	Compatible with models 88722xx, 88723xx, 88725xx, 88726xx, 88741xx and 88742xx
4816JAX	IBM Software Update Subscription for Microsoft Windows Server 2003 R2, Datacenter Edition, 32 bit, 4 processor, High Availability	Compatible with models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY
4816KAX	IBM Software Update Subscription for Microsoft Windows Server 2003 R2, Datacenter x64 Edition, 64 bit, 4 processor, High Availability	Compatible with models 88727AY, 88727BY, 88728AY, 88728BY, 88743AY and 88743BY
	Warranty Upgrades[3, 4]	
96P2679	1-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8872 models.
96P2680	1-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8872 models.
96P2681	1-year MA IOR 24 X 7	Warranty upgrade for all Datacenter 8872 models.
96P2682	1-year MA IOR 24 X 7	Warranty upgrade for all Datacenter 8872 models.
96P2683	2-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8872 models.
96P2684	2-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8872 models.
96P2685	2-year MA IOR 24 X 7	Warranty upgrade for all Datacenter 8872 models.
96P2686	2-year MA IOR 24 X 7	Warranty upgrade for all Datacenter 8872 models.
96P2687	3-year IOR 9 x 5	Warranty upgrade for all Datacenter 8872 models.
96P2688	3 Year IOR 24x7x4	Warranty upgrade for all Datacenter 8872 models.
96P2689	3 Year IOR 24x7x2	Warranty upgrade for all Datacenter 8872 models.
96P2692	4 Year IOR 24x7x4	Warranty upgrade for all Datacenter 8872 models.

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Table 49. Datacenter High Availability Solution Additional Options[1] (continued)

Additional, certified options for use with IBM Datacenter solutions.		
Option Number	**Description**	**Comment**
96P2693	4 Year IOR 24x7x2	Warranty upgrade for all Datacenter 8872 models.
96P2696	5 Year IOR 24x7x4	Warranty upgrade for all Datacenter 8872 models.
96P2697	5 Year IOR 24x7x2	Warranty upgrade for all Datacenter 8872 models.
10N3058	3 Year IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3059	3 Year IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3060	3 Year IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3061	4 Year IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3062	4 Year IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3063	4 Year IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3064	4 Year IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3065	5 Year IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3066	5 Year IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3067	5 Year IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3068	5 Year IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3069	1-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3070	1-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3071	1-year MA IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3072	1-year MA IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3073	2-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3074	2-year MA IOR 9 x 5	Warranty upgrade for all Datacenter 8874 models.
10N3075	2-year MA IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
10N3076	2-year MA IOR 24 x 7	Warranty upgrade for all Datacenter 8874 models.
Note: Refer to the Required Service Offerings section at the end of the Datacenter section for any manufacturing install fees that may apply.		
Note: Refer to the x3950 sections of the COG for supported external options such as keyboards, mice, UPSs and switches. Refer to the external storage section of the COG for further external storage configuration. Refer to the Rack section for rack options.		

Notes:
1. All final customer configurations and solutions require IBM Solution Assurance Approval.
2. Software subscriptions for the Datacenter High Availability offering provide upgrades and updates to the Datacenter Operating System for a period of twelve months and can be renewed annually. This annual subscription service ensures that customers receive all updates to the Microsoft Datacenter operating system and roll up of IBM driver updates. Staying current on Datacenter patches is a requirement for Microsoft support. This service is highly recommended for all Datacenter customers.
3. Recommended warranty upgrades Datacenter solutions.
4. 24x7x2 warranty service is limited to selected locations. For list, see Fax #8146 on 1-800-IBM-4FAX.

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Datacenter scalable solutions

The Datacenter Scalable Program Offering delivers a Datacenter Solution that meets Microsoft Datacenter certification requirements in a non-cluster environment giving the customer greater freedom in choosing I/O and other system components.

Table 50. Datacenter Scalable Configurations[1]

The Datacenter Scalable Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.					
Option Number	**Description**	**Total Qty 4-way**	**Total Qty 8-way**	**Total Qty 16-way**	**Total Qty 32-way**
	Select one of the following[2, 3]				
	Single Core Processors				
88722DY	4 x 3.0GHz/667MHz Xeon MP, 4GB Mem, open-bay, 32-bit WS03, Scalable DC	1	1	1	1
88723DY	4 x 3.33GHz/667MHz Xeon MP, 4GB Mem, open-bay, 32-bit WS03, Scalable DC	1	1	1	1
88722EY	4 x 3.0GHz/667MHz Xeon MP, 4GB Mem, open-bay, 64-bit WS03, Scalable DC	1	1	1	1
88723EY	4 x 3.33GHz/667MHz Xeon MP, 4GB Mem, open-bay, 64-bit WS03, Scalable DC	1	1	1	1
	Dual Core Processors				
88725DY	4 x Dual Core 2.66GHz/667MHz-2MB Xeon MP, 4GB Mem, open-bay, 32-bit WS03, Scalable DC	1	1	1	1
88726DY	4 x Dual Core 3.0GHz/667MHz-4MB Xeon MP, 4GB Mem, open-bay, 32-bit WS03, Scalable DC	1	1	1	1
88725EY	4 x Dual Core 2.66GHz/667MHz-2MB Xeon MP, 4GB Mem, open-bay, 64-bit WS03, Scalable DC	1	1	1	1
88726EY	4 x Dual Core 3.0GHz/667MHz-4MB Xeon MP, 4GB Mem, open-bay, 64-bit WS03, Scalable DC	1	1	1	1
88727DY	4 x Dual Core 2.67GHz/667MHz-2x1MB L2 Cache Xeon MP, 4GB Mem, open-bay, 32-bit WS03, Scalable DC	1	1	1	1
88728DY	4 x Dual Core 2.67GHz/667MHz-2x2 MB L2 Cache Xeon MP, 4GB Mem, open-bay, 64-bit WS03, Scalable DC	1	1	1	1
88727EY	4 x Dual Core 2.67GHz/667MHz-2x1MB L2 Cache Xeon MP, 4GB Mem, open-bay, 64-bit WS03, Scalable DC	2	4	2	4
88728EY	4 x Dual Core 3.0GHz/667MHz-2x2 MB L2 Cache Xeon MP, 4GB Mem, open-bay, 64-bit WS03, Scalable DC	2	4	2	4

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Table 50. Datacenter Scalable Configurations[1] (continued)

The Datacenter Scalable Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.					
Option Number	**Description**	**Total Qty 4-way**	**Total Qty 8-way**	**Total Qty 16-way**	**Total Qty 32-way**
	Select appropriate expansion enclosure[4]				
88741DY	x3950 E with 4-way 32-bit Scalable COA	0	1	3	7
88741EY	x3950 E with 4-way 64-bit Scalable COA	0	1	3	7
88742DY	x3950 E with Dual Core 4-way 32-bit Scalable COA	0	1	3	7
88742EY	x3950 E with Dual Core 4-way 64-bit Scalable COA	0	1	3	7
88743DY	3950 E with Dual Core 4-way 32-bit Scalable COA	0	1	3	7
88743EY	3950 E with Dual Core 4-way 64-bit Scalable COA	0	1	3	7
	Scalability kit[5]				
13M7414	2.3m Scalability Cable	0	2	3	6
13M7416	2.9m Scalability Cable	0	0	3	6
	Select appropriate processor[6, 7]				
13N0714	3.0GHz/667MHz-8MB L3 Cache Xeon Processor MP	0	4	12	28
13N0713	3.33GHz/667MHz-8MB L3 Cache Xeon Processor MP	0	4	12	28
25R8941	Dual Core 2.66GHz/667MHz-2MB L2 Cache Xeon Processor MP	0	4	12	28
25R8942	Dual Core 3.0GHz/667MHz-4MB L2 Cache Xeon Processor MP	0	4	12	28
40K2522	Dual Core 2.67GHz/667MHz-2MB L2 Cache Xeon Processor MP[8]	0	4	12	28
40K2523	Dual Core 3.0GHz/667MHz-4MB L2 Cache Xeon Processor MP[8]	0	4	12	28
	Select memory[9, 10]	**Min=4GB**	**Min=8GB**	**Min=16GB**	**Min=32GB**
73P2866	2GB (2x1GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-
73P2867	4GB (2x2GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-
30R5145	8GB (2x4GB) PC2-3200 ECC DDR2 RDIMM Kit	-	-	-	-
39M5809	2GB (2x1GB Kit) PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (512Mb)[8]	-	-	-	-
39M5812	4GB (2x2GB Kit - 8GB Max Memory) PC2-3200 CL3 Double Rank ECC DDR2 SDRAM RDIMM[8]	-	-	-	-
	Select the following as required[9, 10, 11]				
13M7409	4-DIMM Memory Expansion Card	-	-	-	-
41Y5000	4-DIMM DDR Memory Card	-	-	-	-

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Table 50. Datacenter Scalable Configurations[1] (continued)

The Datacenter Scalable Solutions will contain, at a minimum, the components below in the appropriate quantities. Additional Datacenter certified options are listed in the 'Additional Options' table. Required service offerings are listed in the 'Required Service Offerings' table.					
Option Number	**Description**	**Total Qty 4-way**	**Total Qty 8-way**	**Total Qty 16-way**	**Total Qty 32-way**
41Y5004	Scalability Enablement/Memory Adapter[12]	1	2	4	8
41Y5005	Dual Core X3 Upgrade Kit[13]	1	2	4	8
	Select HDDs[14]	**Min=2**	**Min=2**	**Min=2**	**Min=2**
26K5654	36.4GB 10K rpm 2.5" SAS HS HDD	-	-	-	-
26K5655	73.4GB 10K rpm 2.5" SAS HS HDD	-	-	-	-
40K1051	36GB 10K 2.5" SAS Hot-Swap HDD[8]	-	-	-	-
40K1052	73GB 10K 2.5" SAS Hot-Swap HDD[8]	-	-	-	-
	Select the following[15]				
-	Ethernet Cable	1	2	4	8
Note: Refer to the Required Service Offerings section at the end of the Datacenter section for any manufacturing install fees that may apply.					
Note: A node represents a single instance of the operating system. For example, a single-node, 16-way configuration will consist of one x3950 and three x3950 Es.					

Notes:

1. All final customer configurations and solutions require IBM Solution Assurance Approval.
2. The Datacenter OS is not preloaded but is provided "in-box" with each Scalable DC model.
3. Select one model to serve as the primary server. The OS will reside on this server.
4. Select based on primary server selected. x3950 E COA must match the selected x3950 OS.
5. Order both cables in quantities shown per configuration. Connects chassis in a node together for scalability.
6. x3950 Datacenter models ship standard with the maximum number of processors. The x3950 E has zero processors standard.
7. All processors in the solution must match. Select processors for x3950 E based on the processor installed in the primary x3950. Select in quantities of four per x3950 E.
8. This option is applicable for models 88727DY, 88727EY, 88728DY, 88728EY, 88743DY, and 88743EY only.
9. Scalable x3950 Datacenter models have two 2GB DIMMs standard. x3950 E Datacenter models have zero DIMMs standard. Minimum of two DIMMs (one option kit) equating to 4GB required per chassis. Each chassis must contain the same memory configuration.
10. All Datacenter models ship standard with two memory cards. Each memory card supports four DIMMs. Max of four cards are supported per chassis.
11. Memory can be installed using one of two methodologies: Performance installation or cost-effective installation. Performance installation populates one pair of DIMMs per memory card, until four cards are installed, before adding a second pair of DIMMs to a card. Cost-effective installation fully populates each memory card before adding additional cards.
12. Single core Datacenter solutions containing greater than 16 processors require one Scalability Enablement/Memory Adapter (P/N 41Y5004) per chassis. x3950 E dual core Datacenter solutions containing 16 processors and greater require one Scalability Enablement/Memory Adapter (P/N 41Y5004) per chassis. Proof of the appropriate U.S. Government Export License must exist before this option can be ordered or shipped to Tier 3 countries. In addition to providing scalability support, this adapter supports four memory DIMMs and can be used in place of one of the standard, four-slot memory adapters.
13. This option kit includes the components necessary to upgrade xSeries x3950 and x3950 E systems that currently have single-core Intel Xeon MP processors installed to support the dual-core Intel Xeon MP processors. Processors are not included in the kit and must be purchased separately. Once the system is

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upgraded, the new system model type must be registered with IBM. Directions for registering the new system model type are included in the option.

14. Minimum two identical HDDs required on primary server (x3950) for OS. HDDs are optional for x3950 E. Max = 6 HDDs per chassis.
15. One required per chassis for service processor interconnection. The service processors of all chassis must be connected together via an ethernet network.

Datacenter scalable solution additional options

Table 51. Datacenter Scalable Solution Additional Options[1]

Additional, certified options for use with IBM Datacenter solutions.		
Option Number	**Description**	**Comment**
	Disk Systems	Can be attached to x460, x3950, MXE-460 or x3950 E.
181582H	TotalStorage DS4800 Midrange Disk System	
181584H	TotalStorage DS4800 Midrange Disk System	
181588H	TotalStorage DS4800 Midrange Disk System	
	I/O Controllers	
24P0960	DS4000 Host Bus Adapter	Can be installed in x460, x3950, MXE-460 or x3950 E.
39R8729	ServeRAID-8i SAS Controller[2]	Can be installed in x460, x3950, MXE-460 or x3950 E.
31P9601	PRO/1000 MT Server Ethernet Adapter by Intel	Can be installed in x460 or in MXE-460.
73P2701	PRO/1000 MT Dual Port Server Ethernet Adapter by Intel	Can be installed in x460 or in MXE-460.
73P4001	NetXtreme 1000SX+ Fiber Ethernet Adapter	Can be installed in x460 or in MXE-460.
73P4101	NetXtreme 1000T+ Ethernet Adapter	Can be installed in x460 or in MXE-460.
73P4201	NetXtreme 1000T+ Dual Port Ethernet Adapter	Can be installed in x460 or in MXE-460.
39Y6088	NetXtreme 1000 SxG Ethernet Adapter	Can be installed in x3950 or in x3950 E.
39Y6079	NetXtreme 1000 TxG Ethernet Adapter	Can be installed in x3950 or in x3950 E.
39Y6093	NetXtreme 1000 TxG Dual Port Ethernet Adapter	Can be installed in x3950 or in x3950 E.
39Y6105	PRO/1000 GT Server Adapter by Intel	Can be installed in x3950 or in x3950 E.
39Y8729	ServeRAID-8i SAS Controller	Can be installed in x3950 or in x3950 E.
	Racks	
930842S	NetBAY42 Enterprise Rack Cabinet	Compatible with x460 and MXE-460.
930842E	NetBAY42 Enterprise Expansion Rack Cabinet	Compatible with x460 and MXE-460.
93084RX	NetBAY42 ER Enterprise Rack Cabinet - 42u standalone/primary	Compatible with x3950 and x3950 E.
93084XX	NetBAY42 Enterprise Expansion Rack Cabinet - 42u expansion	Compatible with x3950 and x3950 E.
	Software Update Subscriptions[3]	Note: these are 4 processor subscriptions. 8-way configurations will need quantity two, 16-way will need four, etc.
4818GAX	Software Update Subscription for Microsoft Windows Server 2003 Datacenter Edition, 32-bit, 4 processor, Scalable, x460	Compatible with x460 and MXE-460.

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Table 51. Datacenter Scalable Solution Additional Options[1] (continued)

Additional, certified options for use with IBM Datacenter solutions.		
Option Number	**Description**	**Comment**
4818HAX	Software Update Subscription for Microsoft Windows Server 2003 Datacenter Edition, 64-bit, 4 processor, Scalable, x460	Compatible with x460 and MXE-460.
4818JAX	IBM Software Update Subscription for Microsoft Windows Server 2003 R2, Datacenter Edition, 32 bit, 4 processor, Scalable	Compatible with x3950 and x3950 E.
4818KAX	IBM Software Update Subscription for Microsoft Windows Server 2003 R2, Datacenter x64 Edition, 64 bit, 4 processor, Scalable	Compatible with x3950 and x3950 E.
	Warranty Upgrades[4, 5]	
96P2679	1-year MA IOR 9 x 5	Warranty upgrade for x460 and x3950.
96P2680	1-year MA IOR 9 x 5	Warranty upgrade for x460 and x3950.
96P2681	1-year MA IOR 24 X 7	Warranty upgrade for x460 and x3950.
96P2682	1-year MA IOR 24 X 7	Warranty upgrade for x460 and x3950.
96P2683	2-year MA IOR 9 x 5	Warranty upgrade for x460 and x3950.
96P2684	2-year MA IOR 9 x 5	Warranty upgrade for x460 and x3950.
96P2685	2-year MA IOR 24 X 7	Warranty upgrade for x460 and x3950.
96P2686	2-year MA IOR 24 X 7	Warranty upgrade for x460 and x3950.
96P2687	3-year IOR 9 x 5	Warranty upgrade for x460 and x3950.
96P2688	3 Year IOR 24x7x4	Warranty upgrade for x460 and x3950.
96P2689	3 Year IOR 24x7x2	Warranty upgrade for x460 and x3950.
96P2692	4 Year IOR 24x7x4	Warranty upgrade for x460 and x3950.
96P2693	4 Year IOR 24x7x2	Warranty upgrade for x460 and x3950.
96P2696	5 Year IOR 24x7x4	Warranty upgrade for x460 and x3950.
96P2697	5 Year IOR 24x7x2	Warranty upgrade for x460 and x3950.
10N3058	3 Year IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3059	3 Year IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3060	3 Year IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3061	4 Year IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3062	4 Year IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3063	4 Year IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3064	4 Year IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3065	5 Year IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3066	5 Year IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3067	5 Year IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3068	5 Year IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3069	1-year MA IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3070	1-year MA IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.

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Table 51. Datacenter Scalable Solution Additional Options[1] (continued)

Additional, certified options for use with IBM Datacenter solutions.		
Option Number	**Description**	**Comment**
10N3071	1-year MA IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3072	1-year MA IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3073	2-year MA IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3074	2-year MA IOR 9 x 5	Warranty upgrade for MXE-460 and x3950 E.
10N3075	2-year MA IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
10N3076	2-year MA IOR 24 x 7	Warranty upgrade for MXE-460 and x3950 E.
Note: Refer to the Required Service Offerings section at the end of the Datacenter section for any manufacturing install fees that may apply.		
Note: Refer to the x3950 sections of the COG for supported external options such as keyboards, mice, UPSs and switches. Refer to the external storage section of the COG for further external storage configuration. Refer to the Rack section for rack options.		

Notes:
1. All final customer configurations and solutions require IBM Solution Assurance Approval.
2. A maximum of two ServeRAID 8i controllers is allowed per Datacenter node (each instance of the operating system). One of the two ServeRAID 8i controllers must be installed in the x460 or the x3950. The other ServeRAID 8i controller can be installed in an MXE-460 or x3950 E to fit your configuration.
3. Software subscriptions provide updates for a period of twelve months and can be renewed annually. This annual subscription service ensures that customers receive all updates to the Microsoft Datacenter operating system and roll up of IBM driver updates. Staying current on Datacenter patches is a requirement for Microsoft support. This service is highly recommended to all Datacenter customers.
4. Recommended warranty upgrades for x3950 and x3950 E Datacenter solutions.
5. 24x7x2 warranty service is limited to selected locations. For list, see Fax #8146 on 1-800-IBM-4FAX.

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Manufacturing configuration services

Required service offerings are manufacturing install fees associated with installing and configuring xSeries solutions.

Table 52. Required Service Offerings

Service Offerings to be included as required		
Option Number	**Description**	**Comment**
Services Offerings		
06P7505	Image Load Fee	OS preload service. One per primary server.
58P8663	Option Install Fee (1 to 3 options)	Service to install up to three options into selected systems. One per chassis requiring one to three options be installed.
58P8665	Option Install Fee (4 or more options)	Service to install four or more options into selected systems. One per chassis requiring four or more options be installed.
06P7514	42U Enterprise Rack Prep Fee	One per rack required.
31P4310	Install 1U Device in Rack Fee	Service to install a 1U device into selected rack. One per 1U device.
06P7515	Install greater-than-1U Device in Rack Fee	Service to install a greater-than-1U device into selected rack. One per device that is greater than 1U.
73P7492	Configured Systems Shipgroup	Shipgroup for miscellaneous parts/items that were not installed into selected systems or into selected racks. One per order.

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Chapter 22. eServer 326m

Table 53. eServer 326m At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor[4]	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[5]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[6]
7969-46Y	1.8/1000 1MB L2 Opteron Processor Model 265 Dual Core	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	CD-ROM (24x-10x)	3 / 1	2 / 2
7969-55Y	2.0/1000 1MB L2 Opteron Processor Model 270 Dual Core	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	H	Y	1GB	U320	Hot-Swap	0GB/ 600GB	CD-ROM (24x-10x)	3 / 2	2 / 2
7969-56Y	2.0/1000 1MB L2 Opteron Processor Model 270 Dual Core	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	CD-ROM (24x-10x)	3 / 1	2 / 2
7969-65Y	2.2/1000 1MB L2 Opteron Processor Model 275 Dual Core	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	H	Y	1GB	U320	Hot-Swap	0GB/ 600GB	CD-ROM (24x-10x)	3 / 2	2 / 2
7969-66Y	2.2/1000 1MB L2 Opteron Processor Model 275 Dual Core	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	CD-ROM (24x-10x)	3 / 1	2 / 2

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Table 53. eServer 326m At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor[4]	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[5]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[6]
7969-67Y	2.2/1000 1MB L2 Opteron Processor Model 275 Dual Core	2 / 2	4GB/ 16GB	Rack (1U)	1 / 1	-	Y	1GB	U320	Hot-Swap	72.8GB/ 600GB	-[7]	3 / 2	2 / 2
7969-68Y	2.2/1000 1MB L2 Opteron Processor Model 275 Dual Core	2 / 2	4GB/ 16GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	-[7]	3 / 1	2 / 2
7969-75Y	2MB L2 Opteron Processor Model 280 Dual Core	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	H	Y	1GB	U320	Hot-Swap	0GB/ 600GB	CD-ROM (24x-10x)	3 / 2	2 / 2
7969-76Y	2MB L2 Opteron Processor Model 280 Dual Core	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	CD-ROM (24x-10x)	3 / 1	2 / 2
7969-81Y	2.6/1000 1MB L2 Opteron Processor Model 252	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	H	Y	1GB	U320	Hot-Swap	0GB/ 600GB	CD-ROM (24x-10x)	3 / 2	2 / 2
7969-82Y	2.6/1000 1MB L2 Opteron Processor Model 252	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	CD-ROM (24x-10x)	3 / 1	2 / 2
7969-91Y	2.8/1000 1MB L2 Opteron Processor Model 254	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	H	Y	1GB	U320	Hot-Swap	0GB/ 600GB	CD-ROM (24x-10x)	3 / 2	2 / 2

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Table 53. eServer 326m At-A-Glance (continued)

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Number of Processors (Std/Max)	Memory (Std/Max)[3]	Form Factor	Power Supply Quantity (Std/Max)	Hot-swap (Power, Slots, HDD, Fans)	System Management Processor[4]	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[5]	Optical Drive	Bays (Total/Avail)	Slots (Total/Avail)[6]
7969-92Y	2.8/1000 1MB L2 Opteron Processor Model 254	1 / 2	1GB/ 8GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	CD-ROM (24x-10x)	3 / 1	2 / 2
7969-85Y[8]	2.6/800 2MB L2 Opteron Model 285 Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 1	H	Y	1GB	U320	Hot-Swap	0GB/ 600GB	CD-ROM (24x-10x)	3 / 2	2 / 2
7969-86Y[8]	2.6/800 1MB L2 Model 285 Dual Core	1 / 2	1GB/ 16GB	Rack (1U)	1 / 1	-	Y	1GB	SATA	Fixed	80GB/ 320GB	CD-ROM (24x-10x)	3 / 1	2 / 2

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7969-46Y is 7969-46U. See the product specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for L.A. and A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. The eServer 326m contains dual-core AMD Opteron models 265, 270, 275 or 280, and single-core models 252 and 254.
3. System memory can be expanded to 16 GB by installing a 2 GB PC3200 CL3 ECC DDR SDRAM RDIMM in each of the eight memory DIMM sockets. Only dual processor systems support 16GB of memory. Single processors only support 8GB.
4. If using the Remote Supervisor Adapter II, one USB port will not be available.
5. Capacities are based on installation of two 300 GB Ultra320 HDDs (SCSI models) or two 160 GB SATA HDDs (SATA models).
6. Either two PCI-E x8 slots or one PCI-E x8 and one PCI-X 133MHz can be used. One adapter slot is full-length. The other slot is half-length supporting cards not exceeding 180mm in length.
7. This machine type does not include a CD-ROM as standard.
8. This machine type includes dual-core AMD Opteron Processors.

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eServer 326m processor options

SBB Number	Option Number	Feature Code	Description	SMP Support[1]
32R2013	25R8961	0291	Opteron Dual Core Processor Model 265	4xx
32R2015	25R8960	0292	Opteron Dual Core Processor Model 270	5xx
32R2017	25R8959	0293	Opteron Dual Core Processor Model 275	6xx
32R2341	25R8966	0650	Opteron Dual Core Processor Model 280	7xx
13M8216	13N0703	0392	Opteron Processor Model 252	81Y, 82Y
40K1974	25R8963	1257	Opteron Dual Core Processor Model 285	85Y, 86Y
32R2241	13N0704	0421	Opteron Processor Model 254	9xx

Notes:
1. Microprocessor SMP upgrades must be of the same type and clock speed. Mixing microprocessors of different speeds or cache size is not supported.

eServer 326m memory options

SBB Number	Option Number	Feature Code	Description
			Memory DIMMs[1, 2]
73P3241	-	0526	2GB PC3200 CL2.5 ECC DDR DRAM RDIMM (512Mbit)
39M5798	-	0594	512MB PC2-3200-333 ECC DDR2 DIMM

Notes:
1. The eServer 326m supports mixed memory sizes in pairs and features Chipkill memory.
2. To optimize system performance in a single-microprocessor configuration, install first DIMM pair in slots 1 and 2, and the second DIMM pair in slots 3 and 4. To optimize system performance in a dual-microprocessor configuration, install first DIMM pair in slots 1 and 2 and the second DIMM pair in slots 7 and 8. Install the third DIMM pair in slots 3 and 4, and fourth pair in slots 5 and 6.

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Table 54. Standard Memory Configuration

Model	Standard DIMM Configuration
46Y,55Y,56Y,65Y,66Y,75Y,76Y, 81Y,82Y,91Y,92Y, 85Y, 86Y	2x512MB PC3200 CL2.5 ECC DDR DRAM RDIMM
67Y, 68Y	4x1GB PC3200 CL2.5 ECC DDR DRAM RDIMM

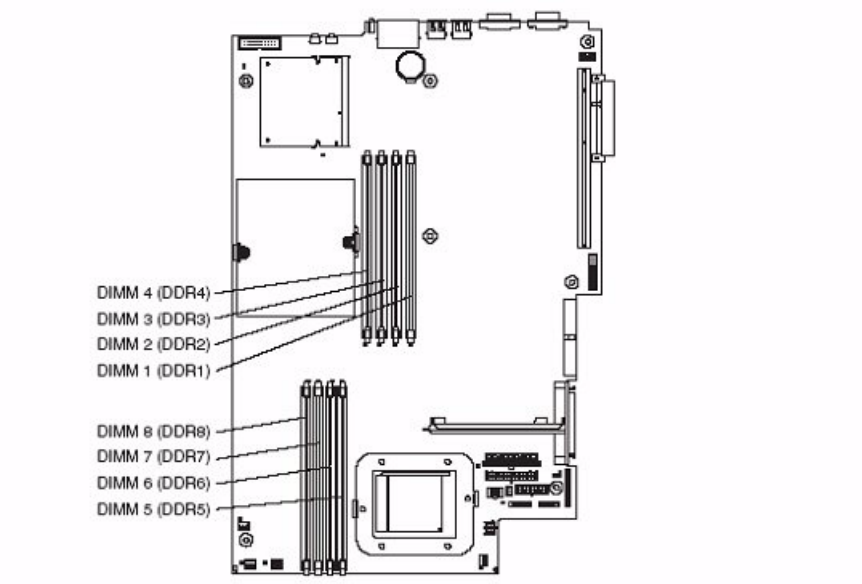

Figure 51. eServer 326m DIMMs

eServer 326m internal SCSI cabling

Hot-Swap SCSI models

eServer 326m hot-swap models contain a DASD backplane supporting two hot-swap, SCA-2-compliant drive bays. The backplane is connected to the internal connector of the integrated Ultra320 SCSI controller through a 16-bit low-voltage differential SCSI cable.

Fixed SATA models

eServer 326m non-hot-swap models contain an 80 GB SATA HDD cabled directly to an integrated SATA controller through a two-drop cable.

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eServer 326m hard disk drive (HDD) and optical storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
SATA HDDs						
13M7715	25R6902	5252	80GB 7200 RPM Serial ATA	-	1,2	2
13M7716	25R6903	5253	160GB 7200 RPM Serial ATA	-	1,2	2
Simple-Swap SATA HDDs						
39M4501	39M4500	5290	80GB 7200-rpm Simple-swap SATA II HDD	-	-	-
39M4535	39M4504	5294	160GB 7200 RPM Simple-Swap SATA HDD	-	-	-
Hot-Swap SATA HDD						
39M4519	39M4518	5299	80GB 7200 RPM Hot Swap SATA II HDD	-	-	-
39M4523	39M4522	5150	160GB 7200 RPM Hot Swap SATA II HDD	-	-	-
39M4599	39M4514	5180	500GB 7200 RPM Hot-Swap SATA HDD	-	-	-
Hot-Swap Ultra320 HDDs						
40K1057	40K1025	5167	300GB 10K RPM Ultra320 SCSI Hot-Swap SSL HDD	-	-	-
40K1058	40K1026	5168	36.4GB 15K RPM Ultra320 SCSI Hot-Swap SSL HDD	-	-	-
40K1059	40K1027	5169	73.4GB 15K RPM Ultra320 SCSI Hot-Swap SSL HDD	-	-	-
40K1060	40K1028	5170	146.4GB 15K RPM Ultra320 SCSI Hot-Swap SSL HDD	-	-	-
Associated Options						
-	-	-	-	-	-	-
Optical Drives						
-	-	-	-	-	-	-

External Storage Units				Form Factor
-	17401xx	-	TotalStorage DS4000 EXP700 Expansion Unit (all models)	-
-	35601xx	-	TotalStorage FAStT EXP500 Expansion Unit (all models)	-
-	17101xx	-	TotalStorage DS4000 EXP100 Storage Expansion Unit (all models)	-

Bay	Form Factor	Height	Front Access	Usage
1	133 mm (5.25in)	US	Y	Std Optical
2	89KMM (3.5in)	SSL	Y	HDD
3	89KMM (3.5in)	SSL	Y	HDD

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eServer 326m I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable
Storage Controllers							
02R0995	39R8815	1654	ServeRAID-6M Ultra 320 SCSI Controller 128MB Cache with battery	Full	64-bit/ 133MHz	1	-
02R0996	39R8816	1653	ServeRAID-6M Ultra 320 SCSI Controller 256MB Cache with battery	Full	64-bit/ 133MHz	1	-
71P8651	39R8805	1651	ServeRAID 7t SATA Controller[1]	Half	64-bit/ 133MHz	1	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	Half	64 bit/ 133MHz	1	Y
39R8809	39R8805	1683	IBM ServeRAID 7t SATA Controller	Half	64-bit/ 66MHz	1	-
39R8819	39R8815	1685	ServeRAID-6M Ultra320 SCSI Controller (128MB)	Full	64 bit/ 133MHz	1	-
39R8820	39R8816	1686	ServeRAID-6M Ultra320 SCSI Controller (256MB)	Full	64 bit/ 133MHz	1	-
			External Disk Systems and Options				
-	17226LU	-	DS4300 Midrange Disk (6LU)	-	-	-	-
-	17001RS	-	TotalStorage DS400 - Single Controller	-	-	-	-
-	17002RD	-	TotalStorage DS400 - Dual Controller	-	-	-	-
-	17011RL	-	TotalStorage DS300 - Single Controller LC	-	-	-	-
-	17011RS	-	TotalStorage DS300 - Single Controller	-	-	-	-
-	172260U	-	DS4300 Midrange Disk (60U)	-	-	-	-
-	17226LX	-	DS4300 Midrange Disk (6LX)	-	-	-	-
-	17421RX	-	DS4400 Midrange Disk System	-	-	-	-
-	174290X	-	DS4500 Midrange Disk System	-	-	-	-
-	2005H08	-	IBM TotalStorage Fibre Channel Switch H08	-	-	-	-
-	2005H16	-	IBM TotalStorage Fibre Channel Switch H16	-	-	-	-
-	2006L10	-	IBM TotalStorage Storage Switch	-	-	-	-
			Networking				
39Y6129	39Y6126	2944	PRO/1000 PT Dual Port Server Adapter by Intel	-	-	-	-
73P5105	73P5101	1579	PRO/1000 GT Dual Port Server Adapter by Intel	Half	64-bit/ 133MHz	2	-
73P5205	73P5201	1580	PRO/1000 GT Quad Port Server Adapter by Intel	Half	64-bit/ 133MHz	2	-
30R5005	30R5001	1566	IBM 10 GB Ethernet Adapter	Half	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable
40K9098	40K9112	2918	Myricom Myri-10G 2MB PCI Express Adapter w/ 10GBASE-CX4 Port	Half	PCI-E 8x	1, 2	-
40K9099	40K9113	2919	Myricom Myri-10G 2MB PCI Express Adapter w/ XAUI-MTP Port	Half	PCI-E 8x	1, 2	-
40K9100	40K9114	2920	Myricom Myri-10G PCI Express Adapter w/ 10GBASE-SR Port	Half	PCI-E 8x	1, 2	-
40K8840	40K8900	1677	Myricom Myrinet 333MHz Dual Fiber PCI-X Adapter w/ 2MB Memory	Half	64-bit/ 133Mhz	1	-
40K8841	40K8901	2916	Myricom Myrinet 333MHz Single Fiber PCI-X Adapter w/ 2MB Memory	Half	64-bit/ 133Mhz	1	-
40K8842	40K8902	1476	Voltaire 10Gbps Host Channel PCI Express Adapter	Half	PCI-E 8x	1, 2	-
Systems Management[1]							
-	39Y9566	-	Remote Supervisor Adapter II Slimline Refresh 1	Half	32-bit/ 33MHz	2	-
-	59P2984	-	73P9341 Remote Supervisor Adapter II Slimline	Half	32-bit/ 33MHz	2	-
Other I/O							
32R2287	-	4269	PCI-X Riser Card[1]	-	-	-	-
32R2288	-	4270	PCI-E Riser Card[2]	-	-	-	-

Notes:
1. If a Remote Supervisor Adapter is selected, then PCI-X Riser, SBB 32R2287, is required. The PCI-X Adapter must be plugged into slot 1 on the PCI-X Riser Card.
2. If two PCI adapters are selected, one must be a PCI-E half length adapter and it must be plugged into PCI Slot 2.

SLOT	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI? (Hotswap)	Slot length
Dedicated Raid Slot	-	-	-	-	-	-	-
PCI Slot 1	PCI-X or PCI-E	-	-	133	-	-	Full
PCI Slot 2	PCI-E	-	-	-	-	-	Half

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eServer 326m power and accessories

SBB Number	Option Number	Feature Code	Description
			Power
-	-	-	-
			Power Distribution Units
39Y7980	39Y8905	5900	DPI NEMA Rack PDU
-	39Y8999	-	32A/230V 3P w/IEC309 3P+N+Gnd Conn
-	39Y9000	-	60A/208V 3P w/IEC309 3P+Gnd Conn
			Uninterruptible Power Supply (UPS)
-	2130R2X	-	IBM UPS 750T HV
-	2130R6X	-	IBM UPS 1500T HV

SBB Number	Option Number	Feature Code	Description
			Racks
-	93061RX	-	NetBAY11 Standard Rack Cabinet
-	93072RX	-	IBM 25U Standard Rack
-	93074RX	-	IBM 42U Standard Rack
-	93074XX	-	IBM 42U Standard Rack Extension
-	93084RX	-	NetBAY42 Enterprise Rack Cabinet
-	93084XX	-	NetBAY42 Enterprise Expansion Rack Cabinet
			Rack/Tower Conversion Kits
-	-	-	-
			Rack Console Connectivity
-	-	-	-
			Monitors
-	49387NU	-	C117 17" CRT Monitor
-	494215U	-	T115 15" TFT Monitor
-	494317U	-	T117 17" TFT Monitor
-	17233RX	-	IBM 1U 15in Flat Panel Monitor Console Kit
-	17231RX	-	IBM 1U 17in Flat Panel Monitor Console Kit w/Optical Drive Bay
			Keyboard and Mouse
0008660	40K5372	8660	IBM USB Keyboard with UltraNav - US English
33P2979	33L3252	8907	Space Device Ball 3D Input
-	90P0777	-	USB Keyboard Enhanced Performance Keyboard
-	17235RX	-	IBM Rack Keyboard Tray

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eServer 326m tape options

SBB Number	Option Number	Feature Code	Description	Bays Supported	Storage Interface	Form Factor	Ext Tape Encl
Tape Drives							
42C3932	39M5657	5365	LT03 Tape Drive[1]	-	-	-	45594UX
71P9176	39M5656	5355	36/72 GB DDS/5 Internal Tape Drive	-	-	-	45594UX 45591UX
External Tape Enclosures							
-	45591UX	-	1U xSeries Tape Enclosure Rack or Tower	-	-	-	-
-	45594UX	-	4U Rackmount SCSI Tape Drive Enclosure	-	-	-	-

Notes:
1. Supported externally only.

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Chapter 23. BladeCenter® T 8720

Table 55. BladeCenter T 8720 At-A-Glance

Part Number	Form Factor (Width/Depth)	Power Modules	Power Module Quantity (Std/Max)	Hot-Swap (Power, Bays, Blowers)	Redundancy (Optional, Standard)	Management Module (Std/Max)[1]	I/O Module Bays (Total/Avail)[2]	Optical Drive	Diskette Drive	Blade Bays (Total/Avail)[3]
8720-2RY	Rack 8U 13.75in x 17.4in	1300W-DC (-48v)	2 / 4	P, B, B	S-Blowers S-Power	1 / 2	4 / 4	24x CD/DVD-RW	-	8/8

Notes:
1. The Management Module incorporates a chassis-level management processor and dual Keyboard/Video/Mouse (KVM) switches. No external KVM switching is required. Installation of additional Management Module will require additional power supplies.
2. A maximum of four I/O switches can be installed in the rear of the system. A maximum of four Gbit Ethernet switches or a maximum of two Gbit Ethernet switches and two-fiber channel switches can be installed. The minimum system configuration requires one Gbit Ethernet switch to be installed.
3. Supports up to 8 single-wide blade servers. Additional power supplies are required to maintain full redundancy beyond four blade servers.

Table 56. BladeCenter T 8720, blade server support

Blade Server	8720
HS20	All[1]
HS21	L1Y, L2Y, L3Y, L4Y, L5Y, EXY
HS40	51X, 61X, 6TX
JS20	RTX
JS21	All
LS20	All

Notes:
1. Due to limited power availability some higher power models require installation at lower densities.

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BladeCenter T 8720 optical storage options

SBB Number	Option Number	Feature Code	Description	Type	Height	Bays Supported	Max Quantity
32R2854	-	4145	IBM Slim 24x/24x/24x/8x combo drive	IDE	-	Optical	1

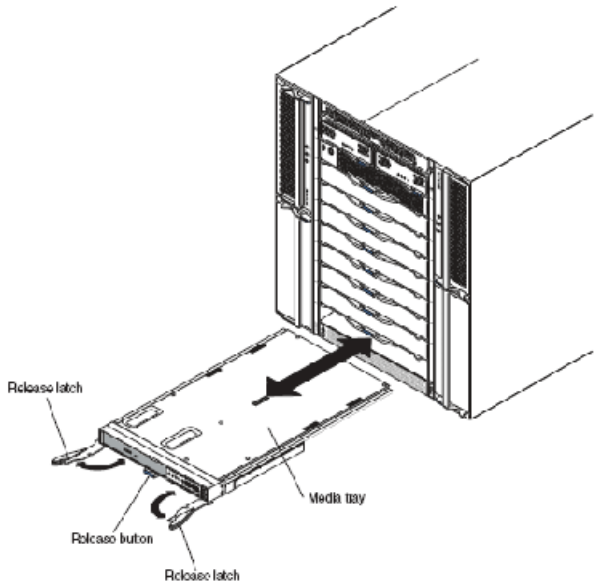

Figure 52. BladeCenter T 8720 front view

BladeCenter T 8720 cabling options

SBB Number	Option Number	Feature Code	Description	Connection Type From	Connection Type To	# of Drops	Connects From	Connects To
39Y9173	39Y9171	4364	IBM eServer BladeCenter Optical Pass-thru Module SC Cable (1.5M)	Multiport Optical	SC Duplex Optical Connections	4	OPM switch	SAN
39Y9175	39Y9172	4365	IBM eServer BladeCenter Optical Pass-thru Module LC Cable (1.5M)	Multiport Optical	LC Duplex Optical Connections	4	OPM switch	SAN
39Y9331	39Y9170	4366	IBM eServer BladeCenter Copper Pass-thru Module Cable	Multiport Copper	CAT 5E Copper Connections	5	CPM switch	Network
32R1854	26R0816	4255	InfiniBand 12x to (3) 4x Cable 3 meter for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	3	IB 12x connector	IB Fabric

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SBB Number	Option Number	Feature Code	Description	Connection Type From	Connection Type To	# of Drops	Connects From	Connects To
32R1852	26R0813	4296	InfiniBand 4x Cable 3 meter for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	1	IB 4x connector	IB Fabric
32R1849	26R0847	4294	InfiniBand 8 meter 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	1	IB 4x connector	IB Fabric
32R1850	26R0849	4295	InfiniBand 8 meter 12 to (3) 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	3	IB 12x connector	IB Fabric
32R1938	32R1937	4362	IBM CX4 1.5 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.
32R1942	32R1941	4363	IBM CX4 3.0 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.

Notes:
1. This cable is 1.5m in length and provides four connections between the optical pass-thru-module (OPM) and an external Ethernet or fibre environment.
2. Provides five copper connections between the copper pass-thru module (CPM) and an external gigabit Ethernet environment. A maximum of 14 connections per CPM is supported. One CPM cable ships with the CPM option. Two additional cables can be installed.
3. Option 39Y9170 cannot be installed by manufacturing. It must be shipped separately, as an accessory.

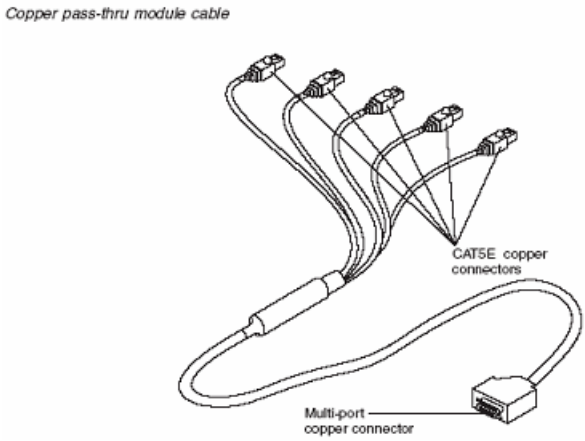

Figure 53. IBM BladeCenter Copper Pass-thru Module Cable

This IBM BladeCenter option provides connection between the copper pass-thru module and an external environment. This cable allows up to five copper connections to blade servers. One of these cables included with each copper pass-thru module. Cable is 3.1m (9.4ft) in length.

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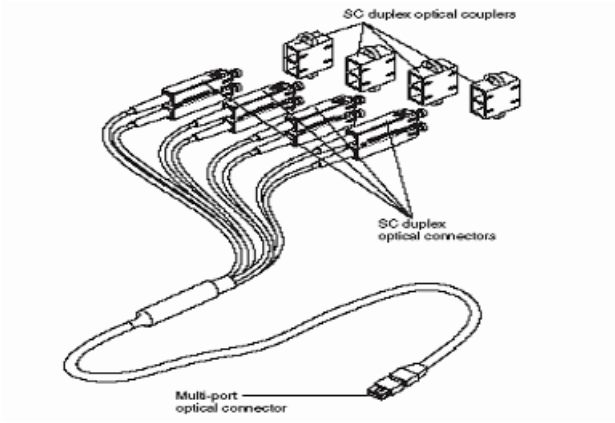

Figure 54. IBM BladeCenter Optical Pass-thru Module SC Cable (1.5M)

This cable provides connection between the Optical Pass-thru Module and an external environment. This 1.5m cable presents four SC connections.

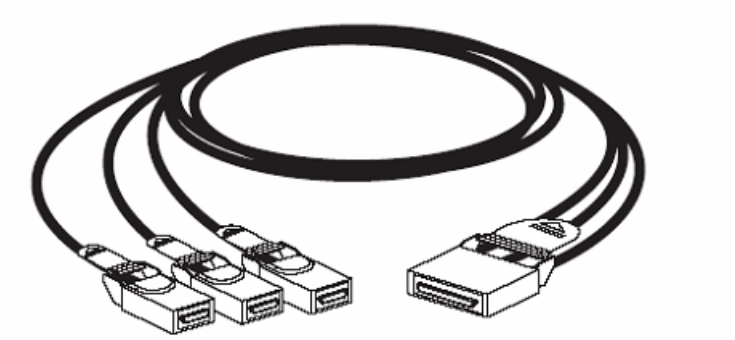

Figure 55. InfiniBand 12x to (3) 4x Cable 3 meter for IBM BladeCenter

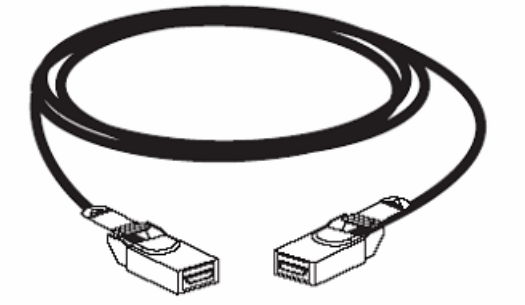

Figure 56. InfiniBand 4x Cable 3 meter for IBM BladeCenter

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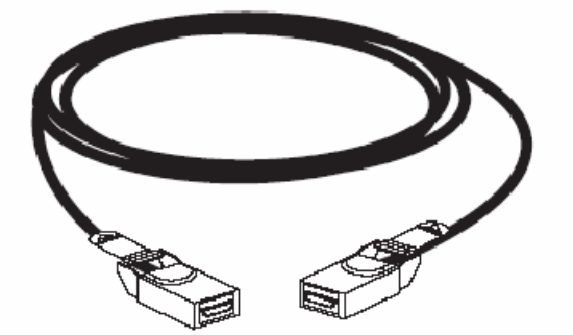

Figure 57. IBM CX4 1.5 or 3.0 meter Cable for IBM BladeCenter (Connector color is Gray)

BladeCenter T 8720 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Networking[1]								
26R0882	26R0881	1560	QLogic® 4Gb 20-port Fibre Channel Switch Module for IBM eServer[1]	-	-	-	Y	2
32R1815	32R1812	1569	Brocade® 4Gb 20-port SAN Switch Module for IBM BladeCenter[1]	-	-	-	Y	2
32R1816	32R1813	1571	Brocade® 4Gb 10-port SAN Switch Module for IBM BladeCenter[1]	-	-	-	Y	2
32R1834	32R1833	1562	McDATA® 4Gb 20-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	Y	2
32R1906	32R1904	1575	QLogic® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	Y	2
32R1907	32R1905	1576	McDATA® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	Y	2
39Y9325	39Y9324	1484	Server Connectivity Module for IBM BladeCenter	-	-	-	-	-
32R1784	32R1783	1493	Nortel 10Gb Uplink Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1862	32R1859	1494	Nortel Networks Layer 2-7 Gb Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
32R1863	32R1860	1495	Nortel Networks L2/L3 Copper Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1864	32R1861	1496	Nortel Networks L2/L3 Fiber Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1889	32R1888	1497	Cisco Systems® Fiber Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1893	32R1892	1498	Cisco Systems Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1901	32R1900	1499	Cisco Systems InfiniBand Switch Module for IBM BladeCenter	-	-	3, 4	Y	2
39Y9317	39Y9316	1556	IBM BladeCenter Optical Pass-thru Module	-	-	1, 2, 3, 4	Y	4
39Y9321	39Y9320	2900	IBM BladeCenter Copper Pass-thru Module	-	-	3, 4	Y	2
System Management								
-	90P3741	-	CMM Redundant Management Module for BladeCenter T [2]	-	-	-	-	1
Associated Options								
32R1879	32R1877	4360	IBM 10GbE 850nm Fiber XFP Transceiver	-	-	-	-	-
32R1880	32R1878	4361	IBM 10GbE 1310nm Fiber XFP Transceiver (LR)	-	-	-	-	-

Notes:
1. Mixing Ethernet (including Copper Pass-thru Module (CPM)) and Fibre/SAN switches in I/O module bays 3 and 4 is not supported. However, mixing Optical Pass-thru modules (OPM) and Ethernet or Fibre/SAN switches in bays 3 and 4 is supported.
2. One required per system. Install in Management Module bay 1.

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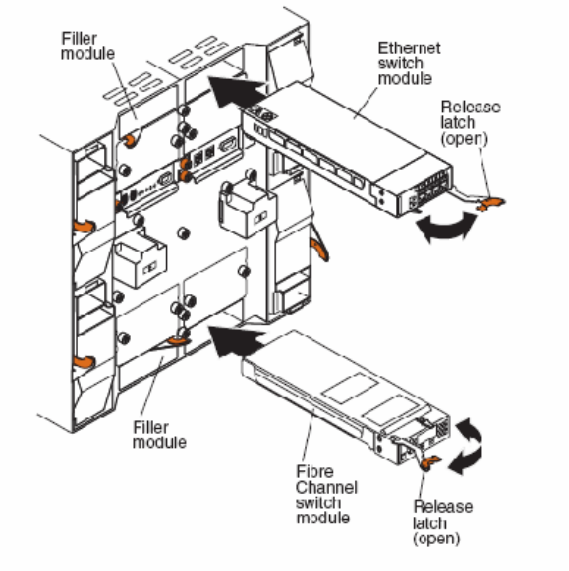

Figure 58. BladeCenter T 8720 modules

BladeCenter T 8720 power and accessories

Table 57. BladeCenter Standard Power Configuration

Model	Power Modules	Power Cord
8720-2RY	2 x 1300w, -48v to -60v DC	DC power cables are customer supplied

SBB Number	Option Number	Feature Code	Description
			Power
32R0799	90P3742	1958	BladeCenter T 1300W-DC Power Supplies
32R0823	32R0833	1959	Redundant BladeCenter T 1300W-DC Power Supplies
			Power Distribution Units
39Y8002	39M2816	6030	IBM DPI C13 PDU+C13 without line cord
39Y8003	39M2818	6080	IBM DPI C19 PDU+C19 without line cord
39Y8004	39M2819	6081	IBM DPI C19 3 phase PDU+C19 with attached line cord
			Racks
32R8309	32R0836	4292	IBM eServer BladeCenter T 2-Post Rack Mount Kit
39R8311	32R0837	4293	IBM eServer BladeCenter T 4-Post Rack Mount Kit
			Monitors
-	49387XX	-	C117 17in (15.9 inch VIS) FST CRT
-	494215X	-	T115 15in TFT LCD
-	494317X	-	T117 17in TFT LCD
-	17233RX	-	IBM IU 15in Flat Panel Monitor Console Kit
-	17231RX	-	IBM 1U 17in Flat Panel Monitor Console Kit w/Optical Drive Bay

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Chapter 24. BladeCenter® T 8730

Table 58. BladeCenter T 8730 Chassis At-A-Glance

Part Number	Form Factor (Width/Depth)	Power Modules	Power Module Quantity (Std/Max)	Hot-Swap (Power, Bays, Blowers)	Redundancy (Optional, Standard)	Management Module (Std/Max)[1]	I/O Module Bays (Total/Avail)[2]	Optical Drive	Diskette Drive	Blade Bays (Total/Avail)[3]
8730-2RY	Rack 8U 13.75in x 17.4in	1300W-AC (-48v)	2/4	P, B, B	S-Blower S-Power	1/2	4/4	24x CD/DVD-RW	-	8/8

Notes:
1. The Management Module incorporates a chassis-level management processor and dual Keyboard/Video/Mouse (KVM) switches. No external KVM switching is required. Installation of additional Management Module will require additional power supplies.
2. A maximum of four I/O switches can be installed in the rear of the system. A maximum of four Gbit Ethernet switches or a maximum of two Gbit Ethernet switches and two-fiber channel switches can be installed. The minimum system configuration requires one Gbit Ethernet switch to be installed.
3. Supports up to 8 single-wide blade servers. Additional power supplies are required to maintain full redundancy beyond 4 blade servers.

Table 59. BladeCenter Chassis, blade server support

Blade Server	8730
HS20	All[1]
HS21	L1Y, L2Y, L3Y, L4Y, L5Y, EXY
HS40	51X, 61X, 6TX
JS20	RTX
JS21	All
LS20	All

Notes:
1. Due to limited power availability some higher power models require installation at lower densities.

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BladeCenter T 8730 optical storage options

SBB Number	Option Number	Feature Code	Description	Type	Height	Bays Supported	Max Qty
32R2854	-	4145	Optical drive 24x combo CD/DVD R/W	IDE	-	Optical	1

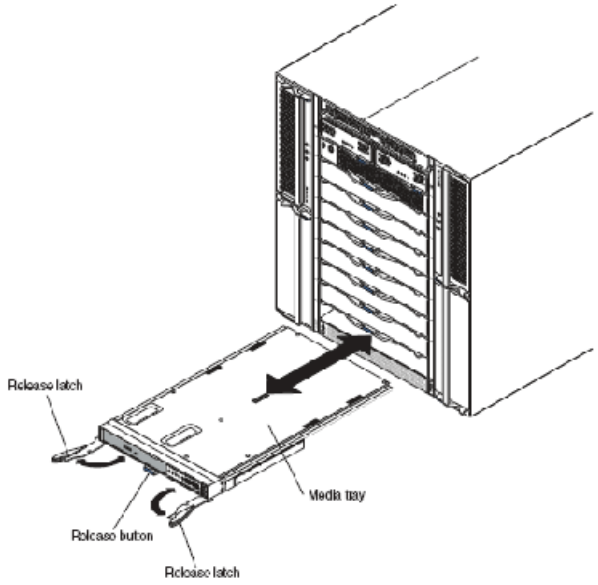

Figure 59. BladeCenter T 8730 front view

BladeCenter T 8730 cabling options

SBB Number	Option Number	Feature Code	Description	Connection Type From	Connection Type To	# of Drops	Connects From	Connects To
39Y9173	39Y9171	4364	IBM eServer BladeCenter Optical Pass-thru Module SC Cable (1.5M)	Multiport Optical	SC Duplex Optical Connections	4	OPM switch	SAN
39Y9175	39Y9172	4365	IBM eServer BladeCenter Optical Pass-thru Module LC Cable (1.5M)	Multiport Optical	LC Duplex Optical Connections	4	OPM switch	SAN
39Y9331	39Y9170	4366	IBM eServer BladeCenter Copper Pass-thru Module Cable	Multiport Copper	CAT 5E Copper Connections	5	CPM switch	Network
32R1854	26R0816	4255	InfiniBand 12x to (3) 4x Cable 3 meter for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	3	IB 12x connector	IB Fabric
32R1852	26R0813	4296	InfiniBand 4x Cable 3 meter for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	1	IB 4x connector	IB Fabric

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SBB Number	Option Number	Feature Code	Description	Connection Type From	Connection Type To	# of Drops	Connects From	Connects To
32R1849	26R0847	4294	InfiniBand 8 meter 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	1	IB 4x connector	IB Fabric
32R1850	26R0849	4295	InfiniBand 8 meter 12 to (3) 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	3	IB 12x connector	IB Fabric
32R1938	32R1937	4362	IBM CX4 1.5 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.
32R1942	32R1941	4363	IBM CX4 3.0 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.

Notes:
1. This cable is 1.5m in length and provides four connections between the optical pass-thru-module (OPM) and an external Ethernet or fibre environment.
2. Provides five copper connections between the copper pass-thru module (CPM) and an external gigabit Ethernet environment. A maximum of 14 connections per CPM is supported. One CPM cable ships with the CPM option. Two additional cables can be installed.
3. Option 39Y9170 can not be installed by manufacturing. It must be shipped separately as an accessory.

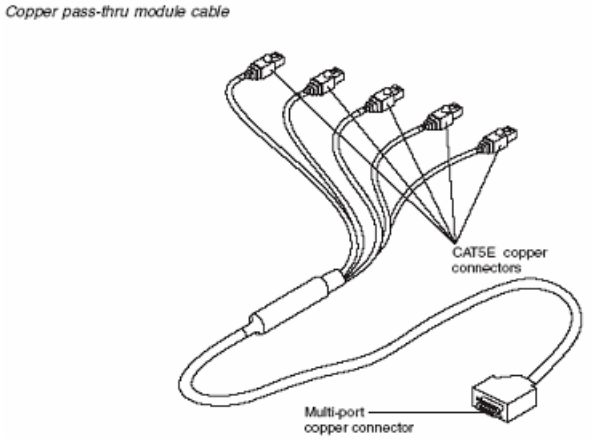

Figure 60. IBM BladeCenter Copper Pass-thru Module Cable

This IBM BladeCenter option provides connection between the copper pass-thru module and an external environment. This cable allows up to five copper connections to blade servers. One of these cables included with each copper pass-thru module. Cable is 3.1m (9.4ft) in length.

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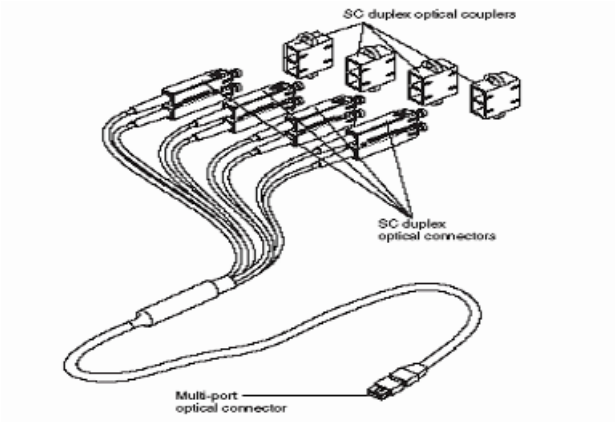

Figure 61. IBM BladeCenter Optical Pass-thru Module SC Cable (1.5M)

This cable provides connection between the Optical Pass-thru Module and an external environment. This 1.5m cable presents four SC connections.

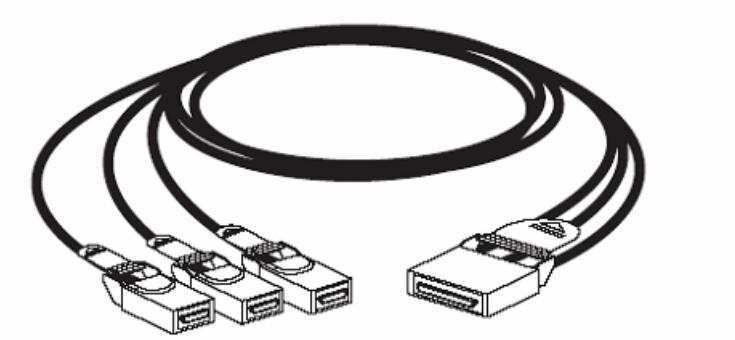

Figure 62. InfiniBand 12x to (3) 4x Cable 3 meter for IBM BladeCenter

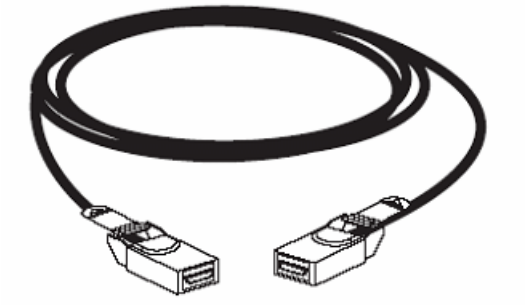

Figure 63. InfiniBand 4x Cable 3 meter for IBM BladeCenter

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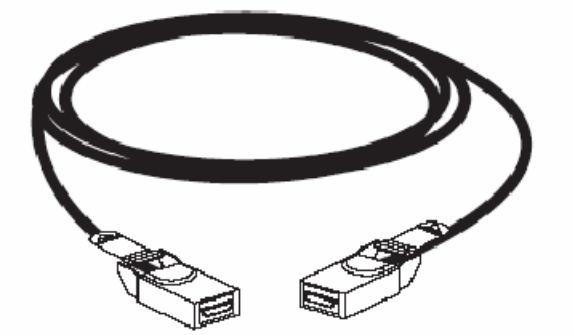

Figure 64. IBM CX4 1.5 or 3.0 meter Cable for IBM BladeCenter (Connector color is Gray)

BladeCenter T 8730 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Networking								
26R0882	26R0881	1560	QLogic® 4Gb 20-port Fibre Channel Switch Module for IBM eServer[1]	-	-	-	-	-
32R1815	32R1812	1569	Brocade® 4Gb 20-port SAN Switch Module for IBM BladeCenter[1]	-	-	-	-	-
32R1816	32R1813	1571	Brocade® 4Gb 10-port SAN Switch Module for IBM BladeCenter[1]	-	-	-	-	-
32R1834	32R1833	1562	McDATA® 4Gb 20-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	-	-
32R1906	32R1904	1575	QLogic® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	-	-
32R1907	32R1905	1576	McDATA® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	-	-
39Y9325	39Y9324	1484	Server Connectivity Module for IBM BladeCenter	-	-	-	-	-
32R1784	32R1783	1493	Nortel 10Gb Uplink Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1862	32R1859	1494	Nortel Networks Layer 2-7 Gb Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
32R1863	32R1860	1495	Nortel Networks L2/L3 Copper Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1864	32R1861	1496	Nortel Networks L2/L3 Fiber Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1889	32R1888	1497	Cisco Systems® Fiber Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1893	32R1892	1498	Cisco Systems Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1901	32R1900	1499	Cisco Systems InfiniBand Switch Module for IBM BladeCenter	-	-	3, 4	Y	2
39Y9317	39Y9316	1556	IBM BladeCenter Optical Pass-thru Module	-	-	1, 2, 3, 4	Y	4
39Y9321	39Y9320	2900	IBM BladeCenter Copper Pass-thru Module	-	-	3, 4	Y	2
System Management[2]								
32R1879	90P3741	-	CMM Redundant Management Module for BladeCenter T	-	-	-	-	1
Associated Options								
32R1879	32R1877	4360	IBM 10GbE 850nm Fiber XFP Transceiver	-	-	-	-	-
32R1880	32R1878	4361	IBM 10GbE 1310nm Fiber XFP Transceiver (LR)	-	-	-	-	-

Notes:
1. When installed in switch module bay 3, port 1 is enabled on blade-installed Fibre Channel expansion cards. When installed in switch bay 4, port 2 is enabled on blade-installed Fibre Channel expansion cards.
2. One required per system. Install in Management Module bay 1.

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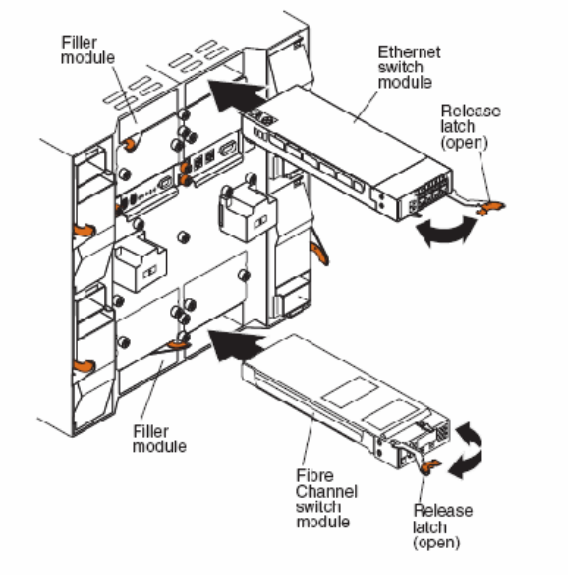

Figure 65. BladeCenter Telco 8730 modules

BladeCenter T 8730 power and accessories

SBB Number	Option Number	Feature Code	Description
			Power
32R0826	32R0834	1961	Redundant BladeCenter T 1300W-AC Power Supplies
			Power Distribution Units
39Y8002	39M2816	6030	IBM DPI C13 PDU+C13 without line cord
39Y8003	39M2818	6080	IBM DPI C19 PDU+C19 without line cord
39Y8004	39M2819	6081	IBM DPI C19 3 phase PDU+C19 with attached line cord
			Racks
32R8309	32R0836	4292	IBM eServer BladeCenter T 2-Post Rack Mount Kit
39R8311	32R0837	4293	IBM eServer BladeCenter T 4-Post Rack Mount Kit
			Monitors
-	49387XX	-	C117 17in (15.9 inch VIS) FST CRT
-	494215X	-	T115 15in TFT LCD
-	494317X	-	T117 17in TFT LCD

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Chapter 25. BladeCenter® chassis 8677

Table 60. BladeCenter Chassis 8677 At-A-Glance

Part Number[1]	Form Factor (Width/Depth)[2]	Power Modules	Power Module Quantity (Std/Max)	Hot-Swap (Power, Bays, Blowers)	Redundancy (Optional, Standard)	Management Module (Std/Max)[3]	I/O Module Bays (Total/Avail)	Optical Drive	Diskette Drive	Blade Bays (Total/Avail)
8677-2XX	Rack (7U) 19in x 28in	1800w AC (200v-240v)	2/4	P, B, B	S-Blowers, S-Power	1/2	4/4	CD-ROM (24x-10x)	USB Floppy	14/14[5]
8677-3XY	Rack (7U) 19in x 28in	2000w AC (200v-240v)	2/4	P, B, B	S-Blowers, S-Power	1/2	4/4	DVD-ROM (8x-SLIM)[4]	USB Floppy	14/14[5]
8677-3RY	Rack (7U) 19in x 28in	2000w AC (200v-240v)	2/4	P, B, B	S-Blowers S-Power	1/2	4/4	DVD-ROM (8x-SLIM) [4]	USB Floppy	14/14[5]
8677-ERY	Rack (7U) 19in x 28in	2000w AC (200v-240v)	4/4	P, B, B	S-Blowers S-Power	1/2	4/4	DVD-ROM (8x-SLIM) [4]	USB Floppy	14/14[5]
8677-E2Y	Rack (7U) 19in x 28in	1800w AC (200v-240v)	4/4	P, B, B	S-Blowers S-Power	1/2	4/4	DVD-ROM (8x-SLIM) [4]	USB Floppy	14/14[5]

Note: BladeCenter Chassis can provide increased density per rack over standalone 1U servers by housing multiple blades in less rack space. BladeCenter solutions increase usability and reduce complexity by providing common sourcing for blade servers, cabling, cabling connections, I/O options, power modules, system management requirements (optional adapters and external cabling), external Fibre Channel storage switching and connectivity, and network management and expansion.

Notes:

1. Model number is a worldwide general available variant (GAV) model number which is not orderable as listed and needs to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8677-3XY is 8677-3XU. See the product specific Official IBM® announcement letter for other country-specific GAV model numbers.
2. Housed in a 19in rack-mountable chassis.
3. The management modules for BladeCenter include KVM components.
4. Only the read function is supported on DVD-ROM drives.
5. Supports up to 14 single-wide blade servers. Additional power supplies are required to maintain full redundancy beyond six blade servers.

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Table 61. BladeCenter Chassis, blade server support

Blade Server	8677
HS20	All
HS21	L1Y, L2Y, L3Y, L4Y, L5Y, EXY
HS40	All
JS20	All
JS21	All
LS20	All

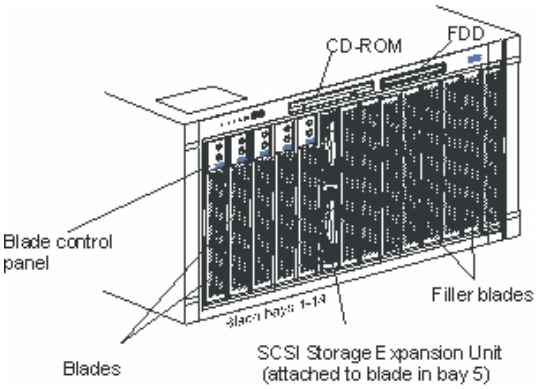

Figure 66. 8677 front view

BladeCenter chassis 8677 optical storage options

SBB Number	Option Number	Feature Code	Description	Type	Height	Bays Supported	Max Qty
26K4484	22P7047	4130	8X Slim DVD-ROM Internal IDE Drive	IDE	-	Optical Bay	1

BladeCenter chassis 8677 cabling options

SBB Number	Option Number	Feature Code	Description	Connection Type From	Connection Type To	# of Drops	Connects From	Connects To
39Y9173	39Y9171	4364	IBM eServer BladeCenter Optical Pass-thru Module SC Cable (1.5M)	Multiport Optical	SC Duplex Optical Connections	4	OPM switch	SAN
39Y9175	39Y9172	4365	IBM eServer BladeCenter Optical Pass-thru Module LC Cable (1.5M)	Multiport Optical	LC Duplex Optical Connections	4	OPM switch	SAN

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SBB Number	Option Number	Feature Code	Description	Connection Type From	Connection Type To	# of Drops	Connects From	Connects To
39Y9331	39Y9170	4366	IBM eServer BladeCenter Copper Pass-thru Module Cable	Multiport Copper	CAT 5E Copper Connections	5	CPM switch	Network
32R1849	26R0847	4294	InfiniBand 8 meter 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	1	IB 4x connector	IB Fabric
32R1850	26R0849	4295	InfiniBand 8 meter 12 to (3) 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	3	IB 12x connector	IB Fabric
32R1938	32R1937	4362	IBM CX4 1.5 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.
32R1942	32R1941	4363	IBM CX4 3.0 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.

Notes:
1. This cable is 1.5m in length and provides four connections between the optical pass-thru-module (OPM) and an external Ethernet or fibre environment.
2. Provides five copper connections between the copper pass-thru module (CPM) and an external gigabit Ethernet environment. A maximum of 14 connections per CPM is supported. One CPM cable ships with the CPM option. Two additional cables can be installed.
3. Option 39Y9170 cannot be installed by manufacturing. It must be shipped separately, as an accessory.

Copper pass-thru module cable

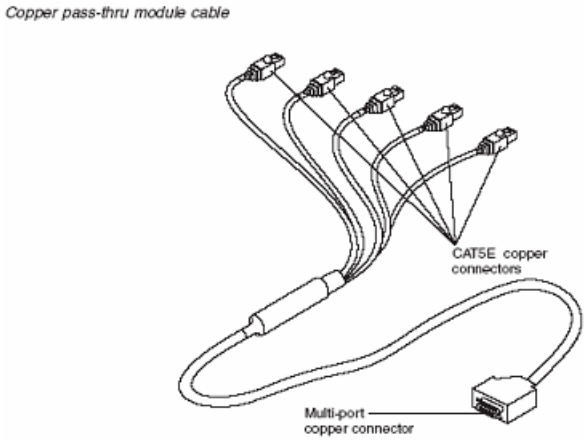

Figure 67. IBM BladeCenter Copper Pass-thru Module Cable

This IBM BladeCenter option provides connection between the copper pass-thru module and an external environment. This cable allows up to five copper connections to blade servers. One of these cables included with each copper pass-thru module. Cable is 3.1m (9.4ft) in length.

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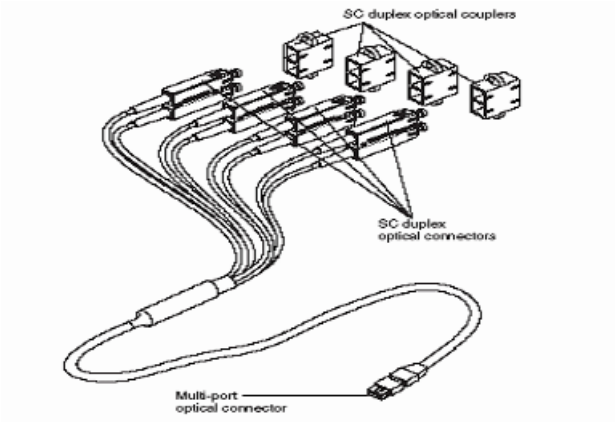

Figure 68. IBM BladeCenter Optical Pass-thru Module SC Cable (1.5M)

This cable provides connection between the Optical Pass-thru Module and an external environment. This 1.5m cable presents four SC connections.

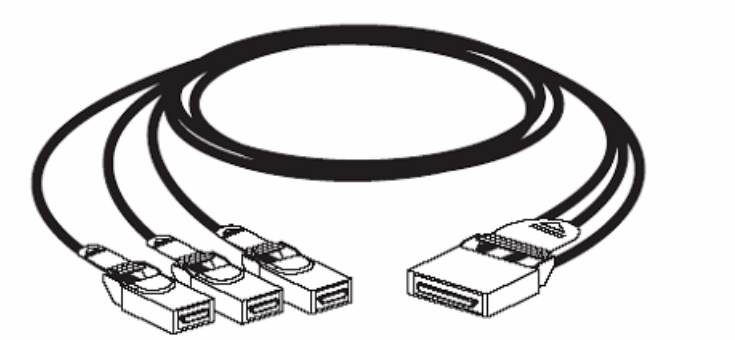

Figure 69. InfiniBand 12x to (3) 4x Cable 3 meter for IBM BladeCenter

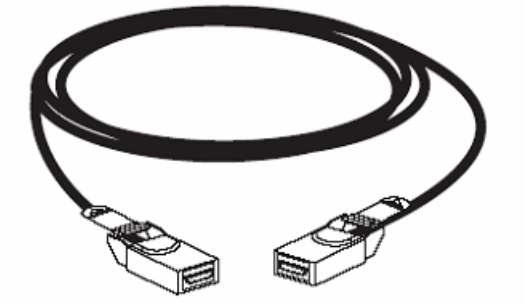

Figure 70. InfiniBand 4x Cable 3 meter for IBM BladeCenter

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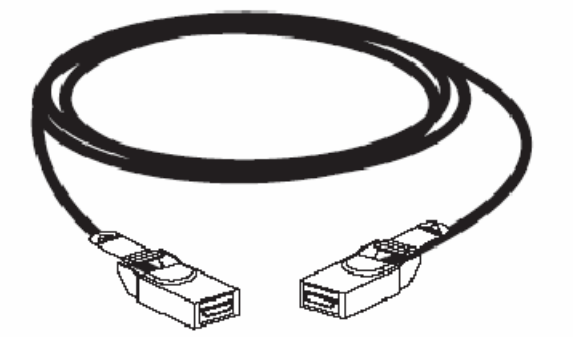

Figure 71. IBM CX4 1.5 or 3.0 meter Cable for IBM BladeCenter (Connector color is Gray)

BladeCenter chassis 8677 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Networking[1]								
26R0882	26R0881	1560	QLogic® 4Gb 20-port Fibre Channel Switch Module for IBM eServer [1]	-	-	3, 4	Y	2
32R1815	32R1812	1569	Brocade® 4Gb 20-port SAN Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1816	32R1813	1571	Brocade® 4Gb 10-port SAN Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1834	32R1833	1562	McDATA® 4Gb 20-port Fibre Channel Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1906	32R1904	1575	QLogic® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1907	32R1905	1576	McDATA® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1784	32R1783	1493	Nortel 10Gb Uplink Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1862	32R1859	1494	Nortel Networks Layer 2 - 7 Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1863	32R1860	1495	Nortel Networks L2/L3 Copper Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
32R1864	32R1861	1496	Nortel Networks L2/L3 Fiber Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1889	32R1888	1497	Cisco Systems® Fiber Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1893	32R1892	1498	Cisco Systems Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1901	32R1900	1499	Cisco Systems InfiniBand Switch Module for IBM BladeCenter	-	-	-	-	-
39Y9317	39Y9316	1556	IBM BladeCenter Optical Pass-thru Module for IBM BladeCenter	-	-	-	-	-
39Y9321	39Y9320	2900	IBM BladeCenter Copper Pass-thru Module for IBM BladeCenter	-	-	-	-	-
39Y9325	39Y9324	1484	Server Connectivity Module for IBM BladeCenter	-	-	-	-	-
System Management								
25R5779	25R5778	1604	IBM BladeCenter Advanced Management Module	-	-	Redundant KVM	Y	1
48P7081	48P7055	1602	IBM BladeCenter Redundant KVM/Management Module	-	-	Redundant KVM	Y	1
Associated Options								
32R1879	32R1877	4360	IBM 10GbE 850nm Fiber XFP Transceiver	-	-	-	-	-
32R1880	32R1878	4361	IBM 10GbE 1310nm Fiber XFP Transceiver (LR)	-	-	-	-	-
0002013	49P2694	2013	IBM BladeCenter Acoustic Attenuation Module	-	-	-	-	-

Notes:
1. Mixing Ethernet (including Copper Pass-thru Module (CPM)) and Fibre/SAN switches in I/O module bays 3 and 4 is not supported. However, mixing Optical Pass-thru modules (OPM) and Ethernet or Fibre/SAN switches in bays 3 and 4 is supported.
2. The Brocade switch modules for BladeCenter allows the interconnection of up to 239 switches.

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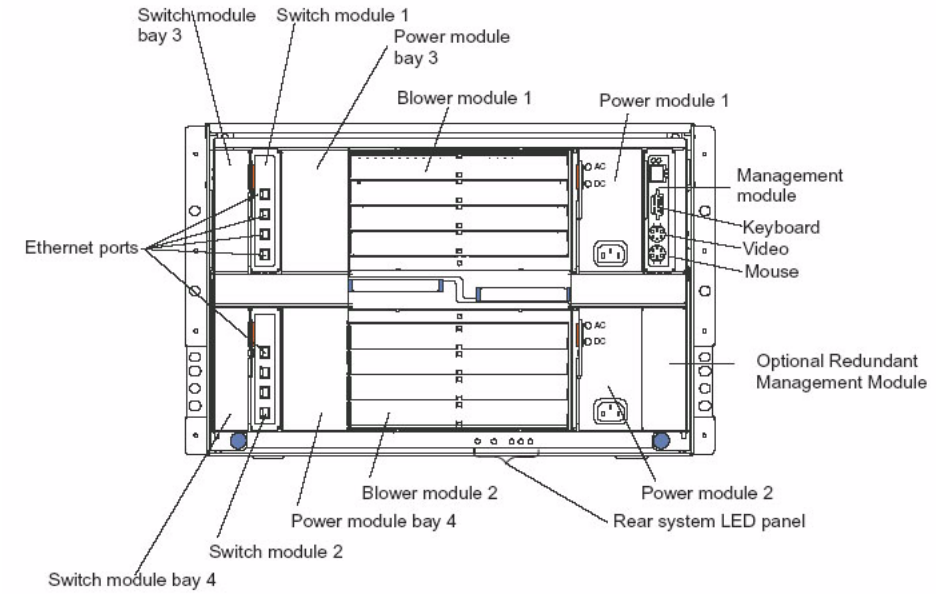

Figure 72. 8677 rear view

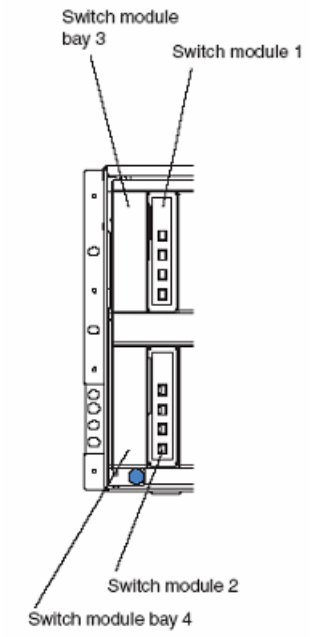

Figure 73. 8677 switch module bays

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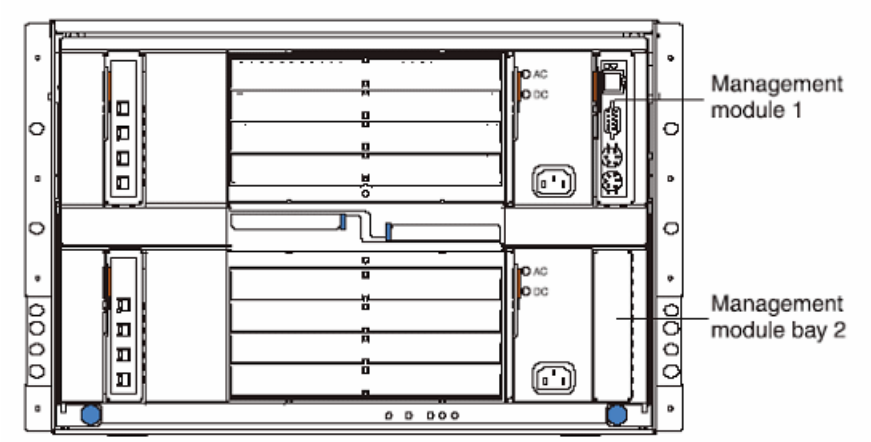

Figure 74. 8677 management module bays

BladeCenter chassis 8677 power and accessories

Table 62. BladeCenter Standard Power Configuration

Model	Power Modules	Power Cord
8677-3XY, 8677-3EY, 8677-3RY	2 x 2000w	2 x 2.5m/8.2ft, 100-240V IEC 320-C19 to IEC 320-C20 rack power cables

SBB Number	Option Number	Feature Code	Description
			Power
39M4622	39M4675	1966	IBM BladeCenter 2000W Power Supplies
			Monitors
-	49387XX	-	C117 17in (15.9 inch VIS) FST CRT
-	494215X	-	T115 15in TFT LCD
-	494317X	-	T117 17in TFT LCD
-	17233RX	-	IBM 1U 15in Flat Panel Monitor Console Kit
-	17231RX	-	IBM 1U 17in Flat Panel Monitor Console Kit w/Optical Drive Bay
			Keyboard and Mouse
-	17235RX	-	IBM Rack Keyboard Tray
13N3224	39M7228	8877	IBM USB UltraNav Keyboard - USB
-	90P0777	-	IBM Enhanced Performance Keyboard - USB

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Chapter 26. BladeCenter® H 8852

Table 63. BladeCenter H 8852 At-A-Glance

Part Number [1]	Form Factor (Width/Depth) [2]	Power Modules	Power Module Quantity (Std/Max)	Hot-Swap (Power, Bays, Blowers)	Redundancy (Optional, Standard)	Advanced Management Module (Std/Max) [3]	I/O Module Bays (Total/Avail)	Optical Drive	Diskette Drive [4]	Blade Bays (Total/Avail) [5]
8852-4XY	Rack (9U) 19in x 29in	2900w (200v-240v)	2/4	P, B, B	S-Blowers, S-Power	1/2	10/10	Combo II [6] 24x/24x/24x/8x	-	14/14

Note: Two power cords are needed but must be ordered separately.

Note: BladeCenter Chassis can provide increased density per rack over standalone 1U servers by housing multiple blades in less rack space. BladeCenter solutions increase usability and reduce complexity by providing common sourcing for blade servers, cabling, cabling connections, I/O options, power modules, system management requirements (optional adapters and external cabling), external Fibre Channel storage switching and connectivity, and network management and expansion.

Notes:
1. Model number is a worldwide general available variant (GAV) model number which is not orderable as listed and needs to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8677-4XY is 8677-4XU. See the product specific Official IBM announcement letter for other country-specific GAV model numbers.
2. Housed in a 19in rack-mountable chassis.
3. The advanced management modules for BladeCenter H include KVM components.
4. Does not ship with a diskette drive. An external FDD is supported attached to one of the two front mounted USB ports.
5. Supports up to 14 single-wide blade servers. Additional power supplies are required to maintain full redundancy beyond seven blade servers.
6. Only the read function is supported on the Combo II drive.

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Table 64. BladeCenter H Chassis, blade server support

Blade Server	8852
HS20	All
HS21	All
JS20	All
JS21	All
LS20	All

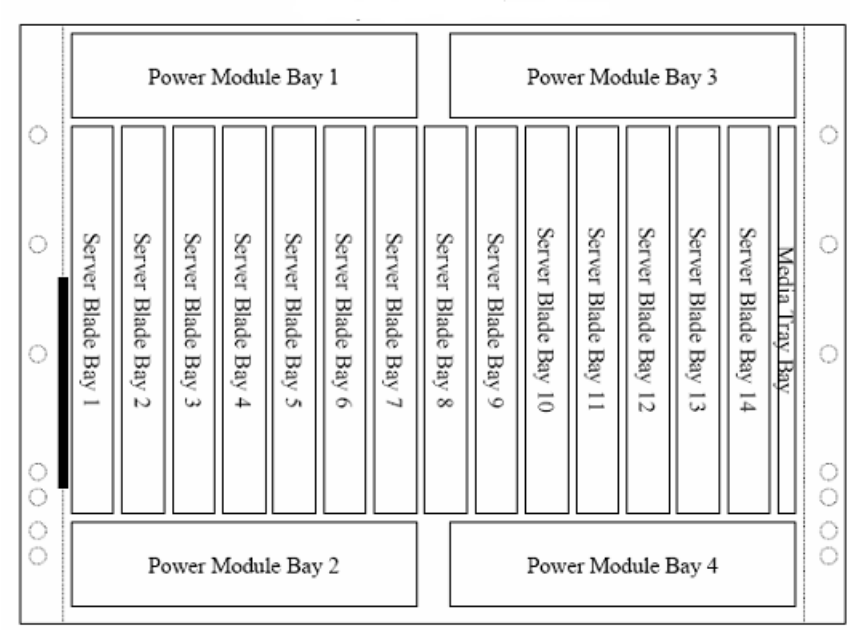

Figure 75. BladeCenter H 8852 front view

BladeCenter H 8852 optical storage options

SBB Number	Option Number	Feature Code	Description	Type	Height	Bays Supported	Max Qty
32R2203	39R7511	4147	Combo II Ultrabay slim 24x24x24x8x	USB	9.5mm	Media Tray	1

Notes:
1. Only the read function is supported on the Combo II drive.

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BladeCenter H 8852 cabling options

SBB Number	Option Number	Feature Code	Description	Connection Type From	Connection Type To	# of Drops	Connects From	Connects To
39Y9173	39Y9171	4364	IBM eServer BladeCenter Optical Pass-thru Module SC Cable (1.5M) [1]	Multiport Optical	SC Duplex Optical Connections	4	OPM switch	SAN
39Y9175	39Y9172	4365	IBM eServer BladeCenter Optical Pass-thru Module LC Cable (1.5M)	Multiport Optical	LC Duplex Optical Connections	4	OPM switch	SAN
39Y9331	39Y9170	4366	IBM eServer BladeCenter Copper Pass-thru Module Cable [2, 3]	Multiport Copper	CAT 5E Copper Connections	5	CPM switch	Network
32R1854	26R0816	4255	InfiniBand 12x to (3) 4x Cable 3 meter for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	3	IB 12x connector	IB Fabric
32R1852	26R0813	4296	InfiniBand 4x Cable 3 meter for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	1	IB 4x connector	IB Fabric
32R1849	26R0847	4294	InfiniBand 8 meter 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	1	IB 4x connector	IB Fabric
32R1850	26R0849	4295	InfiniBand 8 meter 12 to (3) 4x Cable for IBM eServer BladeCenter	InfiniBand	4x InfiniBand	3	IB 12x connector	IB Fabric
32R1938	32R1937	4362	IBM CX4 1.5 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.
32R1942	32R1941	4363	IBM CX4 3.0 Meter Cable	CX4 Connector	CX4 Connector	1	10Gb ESM CX4 Port	Another Nortel 10Gb ESM or external 10Gb switch with CX4 ports.

Notes:

1. This cable is 1.5m in length and provides four connections between the optical pass-thru-module (OPM) and an external Ethernet or fibre environment.
2. Provides five copper connections between the copper pass-thru module (CPM) and an external gigabit Ethernet environment. A maximum of 14 connections per CPM is supported. One CPM cable ships with the CPM option. Two additional cables can be installed.
3. Option 39Y9170 cannot be installed by manufacturing. It must be shipped separately, as an accessory.

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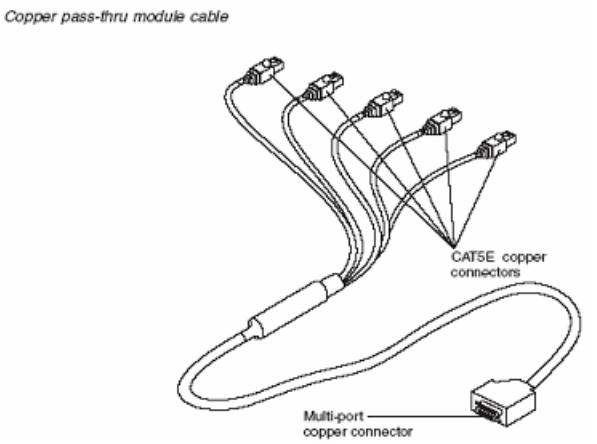

Figure 76. IBM BladeCenter Copper Pass-thru Module Cable

This IBM BladeCenter option provides connection between the copper pass-thru module and an external environment. This cable allows up to five copper connections to blade servers. One of these cables included with each copper pass-thru module. Cable is 3.1m (9.4ft) in length.

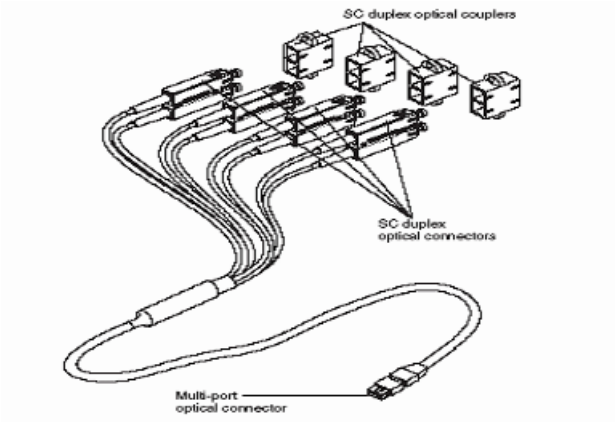

Figure 77. IBM BladeCenter Optical Pass-thru Module SC Cable (1.5M)

This cable provides connection between the Optical Pass-thru Module and an external environment. This 1.5m cable presents four SC connections.

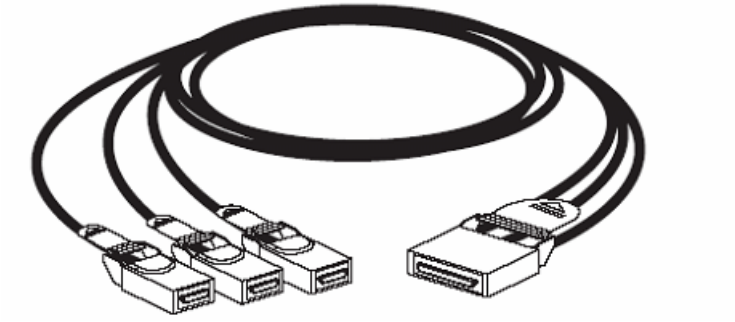

Figure 78. InfiniBand 12x to (3) 4x Cable 3 meter for IBM BladeCenter

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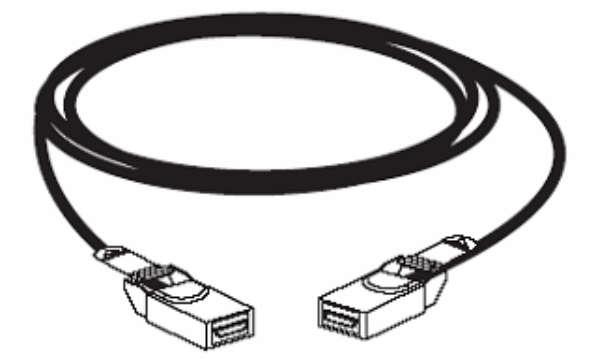

Figure 79. InfiniBand 4x Cable 3 meter for IBM BladeCenter

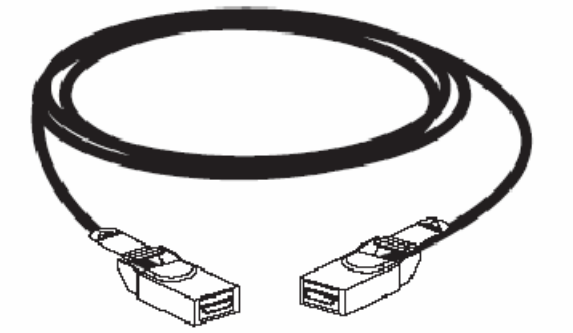

Figure 80. IBM CX4 1.5 or 3.0 meter Cable for IBM BladeCenter (Connector color is Gray)

BladeCenter H 8852 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Networking[1]								
26R0882	26R0881	1560	QLogic® 4Gb 20-port Fibre Channel Switch Module for IBM eServer [1]	-	-	1, 2, 3, 4	Y	4
32R1815	32R1812	1569	Brocade® 4Gb 20-port SAN Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1816	32R1813	1571	Brocade® 4Gb 10-port SAN Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1834	32R1833	1562	McDATA® 4Gb 20-port Fibre Channel Switch Module for IBM BladeCenter [1]	-	-	3, 4	Y	2
32R1862	32R1859	1494	Nortel Networks Layer 2 - 7 Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	3, 4	Y	2

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
32R1863	32R1860	1495	Nortel Networks L2/L3 Copper Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	3, 4	Y	2
32R1864	32R1861	1496	Nortel Networks L2/L3 Fiber Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	3, 4	Y	2
32R1889	32R1888	1497	Cisco Systems Fiber Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	1, 2, 3, 4	Y	4
32R1893	32R1892	1498	Cisco Systems Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-
32R1901	32R1900	1499	Cisco Systems InfiniBand Switch Module for IBM BladeCenter	-	-	-	-	-
32R1906	32R1904	1575	QLogic® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	-	-
32R1907	32R1905	1576	McDATA® 4Gb 10-port Fibre Channel Switch Module for IBM BladeCenter[1]	-	-	-	-	-
39Y9317	39Y9316	1556	IBM BladeCenter Optical Pass-thru Module for IBM BladeCenter	-	-	-	-	-
39Y9321	39Y9320	2900	IBM BladeCenter Copper Pass-thru Module for IBM BladeCenter	-	-	-	-	-
39Y9325	39Y9324	1484	Server Connectivity Module for IBM BladeCenter	-	-	-	-	-
32R1757	32R1756	1574	Cisco Systems 4X InfiniBand Switch module for IBM BladeCenter	-	-	3, 4	Y	2
32R1784	32R1783	1493	Nortel 10Gb Uplink Ethernet Switch Module for IBM BladeCenter	-	-	3, 4	Y	2
Associated Options								
32R1879	32R1877	4360	IBM 10GbE 850nm Fiber XFP Transceiver	-	-	-	-	-
32R1880	32R1878	4361	IBM 10GbE 1310nm Fiber XFP Transceiver (LR)	-	-	-	-	-

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SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
System Management								
25R5779	25R5778	1604	BladeCenter Redundant KVM/Advanced Management Module	Adv Mgmt Module Bay 2	-	Redundant KVM/ Adv Mgmt Module Slot	Y	1

Notes:

1. Mixing Ethernet (including Copper Pass-thru Module (CPM)) and Fibre/SAN switches in I/O module bays 3 and 4 is not supported. However, mixing Optical Pass-thru modules (OPM) and Ethernet or Fibre/SAN switches in bays 3 and 4 is supported.
2. Short- or Long-wave SFP Modules (P/N 19K1271 or 19K1272) are required for each fibre channel port connection.
3. Installs in I/O module bays 3 or 4. When installed in bay 3, port 1 is enabled on blade-installed Fibre Channel expansion cards. When installed in bay 4, port 2 is enabled on blade-installed Fibre Channel expansion cards.
4. Maximum of four allowed in BC and BCT. If supported in BCE, then a maximum of two allowed. Can be installed in any I/O module bay. When installed in I/O module bay 1, integrated Ethernet controller 1 is enabled on all blades. When installed in bay 2, integrated Ethernet controller 2 is enabled on all blades. Installation in I/O module bays 3 or 4 (not supported in BCE) requires an Ethernet expansion card to be installed in blade servers.
5. Installs in I/O module bays 3 and/or 4. Requires the Topspin InfiniBand Host Channel Adapter expansion card to be installed in at least one blade server.
6. Maximum of four allowed and can be installed in any I/O module bay. Must be installed in I/O module bay 4 when Myrinet cluster expansion cards are installed in blade servers. If selected and an OPM SC Cable (39Y9171) or an OPM LC Cable (39Y9172) is not selected, issue the following warning message: "A minimum of one Optical Pass-thru Module cable must be installed in each Optical Pass-thru Module to enable connectivity to your network or Storage Area Network (SAN)."

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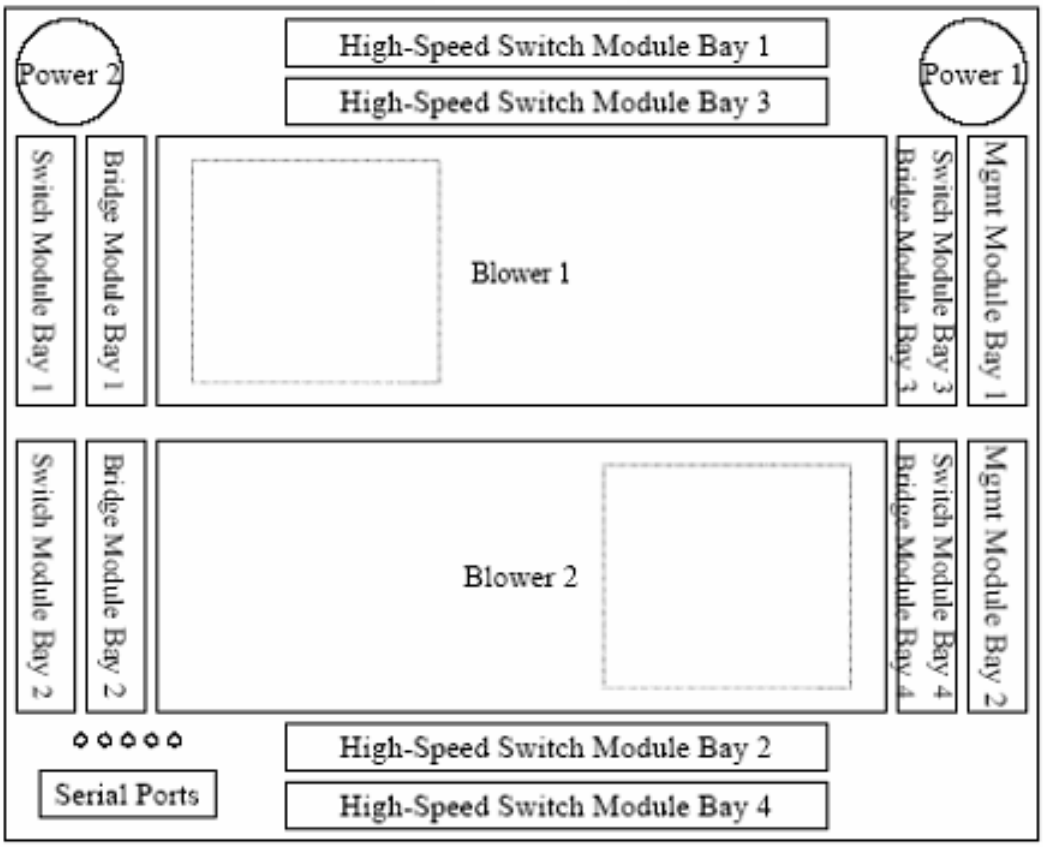

Figure 81. BladeCenter H 8852 rear view

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BladeCenter H 8852 power and accessories

Table 65. BladeCenter H Standard Power Configuration

Model	Power Modules
8852-4XY	2 x 2900w

SBB Number	Option Number	Feature Code	Description
			Power
32R2112	31R3335	1962	BladeCenter H 2900W Power Supplies
			Power Cords[1]
32R2108	25R5785	6226	2.8m, 200-240V, Triple 16A IEC 320-C20 Power Cable
32R2110	25R5784	6271	4.3, 230V, Dual 32A IEC 309 P+N+G / 16A IEC 320-C20 Line Cord
32R2109	25R5783	6270	Double NEMA L6-30P 4.3m
-	40K9605	-	IBM Serial Connection Cable
			Uninterruptible Power Supply
-	21304RX	-	IBM UPS 10000XHV
-	25R5582	-	IBM UPS 3U Online Battery Pack
			Power Distribution Units
39Y8003	39M2818	6080	IBM DPI C19 PDU+C19 without line cord
39Y8004	39M2819	6081	IBM DPI C19 3 phase PDU+C19 with attached line cord
			Monitors
-	49387XX	-	C117 17in (15.9 inch VIS) FST CRT
-	494215X	-	T115 15in TFT LCD
-	494317X	-	T117 17in TFT LCD
-	17233RX	-	IBM 1U 15in Flat Panel Monitor Console Kit
-	17231RX	-	IBM 1U 17in Flat Panel Monitor Console Kit w/Optical Drive Bay
			Keyboard and Mouse
-	17235RX	-	IBM Rack Keyboard Tray
13N3224	39M7228	8877	IBM USB UltraNav Keyboard - USB
-	90P0777	-	IBM Enhanced Performance Keyboard - USB

Notes:
1. Two power cords are required.

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Chapter 27. BladeCenter® HS20 - 7981

Table 66. BladeCenter HS20 - 7981 At-A-Glance

Part Number	CPU./FSB Speed (GHz/MHz) - Cache	Processor Quantity (Std/Max)	Memory (Std/Max)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	HDD Bays (Std/Max)	Expansion Cards (Std/Max)
7981-2FY	1.67GHz/667MHz - 2MB L2 Dual Core	1/2	1GB/16GB	Y	Dual Gb	SAS	Fixed	0/146.8GB	0/2	0/1
7981-3FY	2.0GHz/667MHz - 2MB L2 Dual Core	1/2	1GB/16GB	Y	Dual Gb	SAS	Fixed	0/146.8GB	0/2	0/1
7981-EFY	1.67GHz/667MHz - 2MB L2 Dual Core	1/2	1GB/16GB	Y	Dual Gb	SAS	Fixed	0/146.8GB	0/2	0/1

Notes:
1. This model is a 32-bit platform only. 64-bit operating systems are not supported.
2. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 7981-2FY is 7981-2FU. See the product-specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
3. High-speed, two-way interleaved PC2-3200 RDIMMs. Maximum capacity requires replacing the standard DIMMs. Memory-mirroring, hot-spare memory and Chipkill functions are supported.
4. System management functionality, interconnect network connectivity and console connectivity are managed through the standard management module. The standard integrated service processor monitors HS20 - MT 7981 system management activity, communicating with the management module in the BladeCenter.
5. Dual Broadcom 5704S Gb Ethernet controllers.
6. An integrated, SAS controller supports integrated RAID-0 and 1.
7. Maximum internal storage capacity is based on installation of two 73.4GB SAS HDDs.
8. BladeCenter storage expansion units and PCI expansion units are not supported on the 7981.

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HS20 - 7981 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support
39Y6600	25R8887	0655	Dual-Core Intel® Xeon® Processor LV 1.67 GHz	2FY, EFY
39Y6601	25R8888	0656	Dual-Core Intel® Xeon® Processor LV 2.0 GHz	3FY

Notes:
1. If two processors are installed they must have the same core frequency, Front Side Bus frequency (667MHz) and the same L2 cache size.
2. The CPU with the lowest stepping level must be installed as CPU 1.
3. A 7981 Blade using a single Dual-Core Intel Xeon Processor CPU must have it installed in CPU 1 socket.
4. The system should not be allowed to boot with an empty CPU 1 socket.
5. If CPU 2 socket is empty, it must have a CPU heat sink filler installed.
6. An electrical terminator installed in the CPU 2 socket is not required.

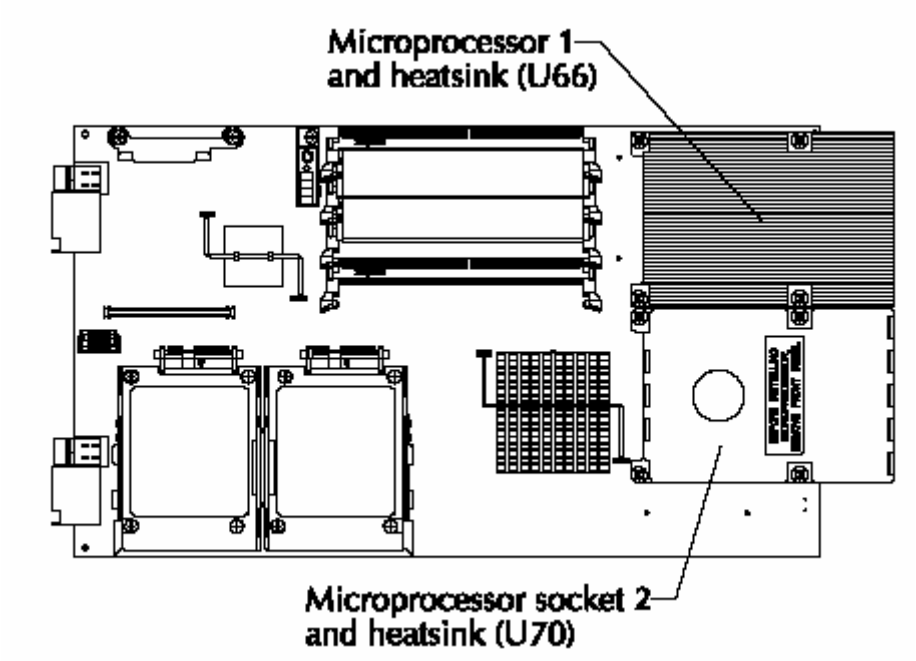

Figure 82. HS20 - 7981 planar

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HS20 - 7981 memory options

SBB Number	Option Number	Feature Code	Memory Description[1, 2]
39M5816	-	0541	512MB DDR-II SDRAM DIMM NON-CHIPKILL
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
-	39M5818	-	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM NON-CHIPKILL (2X512MB KIT) Option
-	39M5821	-	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X512MB KIT) Option
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
-	39M5809	-	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X1GB KIT) Option
39M5810	-	0553	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
-	39M5812	-	4GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X2GB KIT) Option
30R5147	-	0535	4GB PC2-3200R CL3 ECC DDR2 SDRAM RDIMM
-	30R5145	-	8GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X4GB KIT) Option

Notes:
1. The memory subsystem is a 2-way interleaved subsystem; memory must be populated in pairs of 2 identical DIMMs. The two members of the pair must be matched, but the sets do not have to be matched.
2. DIMMs should be installed in the following order: DIMMs 1 & 2 (Pair 1), DIMMs 3 & 4 (Pair 2).
3. BladeCenter HS20-7981 will support Hot Spare Memory and Memory mirroring. Hot Spare Memory and Memory mirroring require 4 identical DIMMS (2 identical pairs).
4. Chipkill function is supported when all four slots have chipkill memory installed.

Table 67. Standard Memory Configuration

Model	Std DIMM Configuration
2FY, 3FY, EFY	1GB PC2-3200 ECC DDR2 SDRAM RDIMM (2X512MB KIT) Option

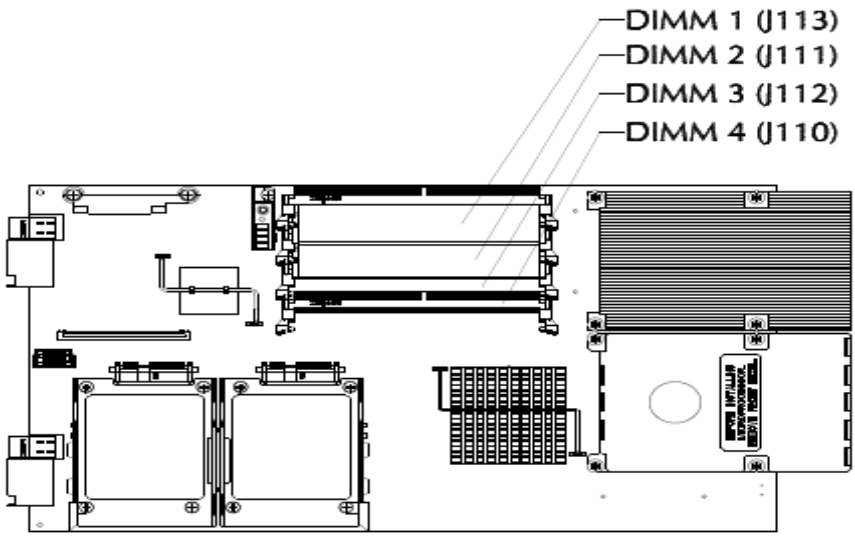

Figure 83. HS20 - 7981 system board

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HS20 - 7981 hard disk drive (HDD) storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity
IDE HDDs						
26K5780	26K5776	5297	36GB 10K SFF SAS NHS	2.5"	1, 2	2
26K5781	26K5777	5298	73GB 10K SFF SAS NHS	2.5"	1, 2	2

Notes:
1. Installation of a second SFF SAS HDD will physically prevent installation of certain expansion cards. See I/O section for more information.
2. BladeCenter HS20-7981 will support the installation of two SFF SAS drives and one SFF daughter card.

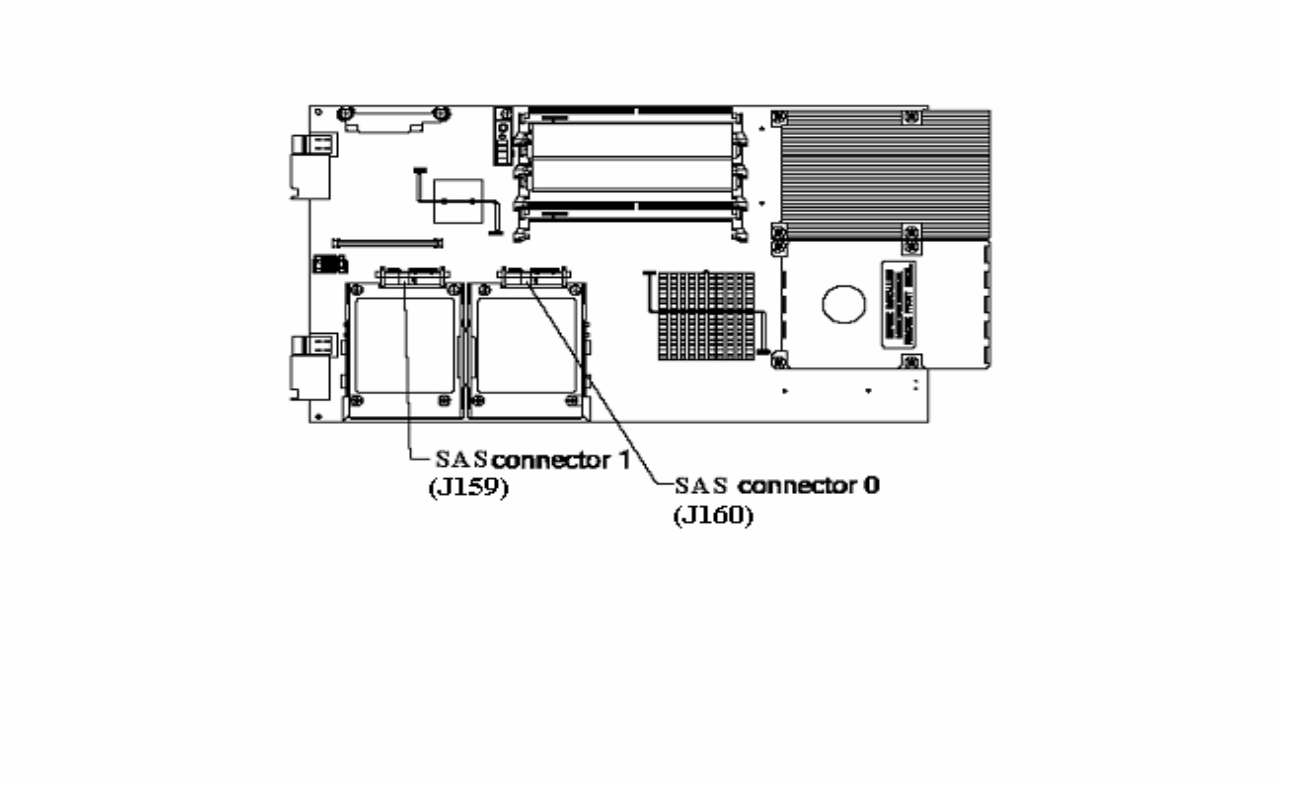

Figure 84. HS20 - 7981 system board

Bay	Form Factor	Height	Front Access	Usage
1	SFF	2.5	N	HDD
2	SFF	2.5	N	HDD

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HS20 - 7981 I/O options

SBB Number	Option Number	Feature Code	Description[1,2]
			Blade Server Expansion Cards
26K4837	73P6000	1546	Myricom® Myrinet® Expansion Card for BladeCenter[3]
26K4843	39R8624	1548	IBM BladeCenter® SFF Gigabit Ethernet Expansion Card
26K4844	26K4841	1549	IBM BladeCenter® SFF Fibre Channel Expansion Card
26R0891	26R0890	1577	Qlogic® 4GB Fibre Channel SFF HBA
39Y9185	39Y9186	2925	Emulex® 4Gb SFF Fibre Channel Expansion Card for IBM BladeCenter®
39Y9116	32R1923	1458	QLogic® iSCSI Expansion Card for BladeCenter

Notes:
1. Quantity one expansion card is supported inside the blade itself. Installation of a StFF (standard form factor) card will physically prevent installation of a second HDD.
2. Requires appropriate I/O modules to be installed in the BladeCenter chassis. Refer to 'Blade Server Storage and I/O Expansion' for appropriate I/O module options and configuration information.
3. Requires an OPM I/O module to be installed in BladeCenter I/O module bay 3.

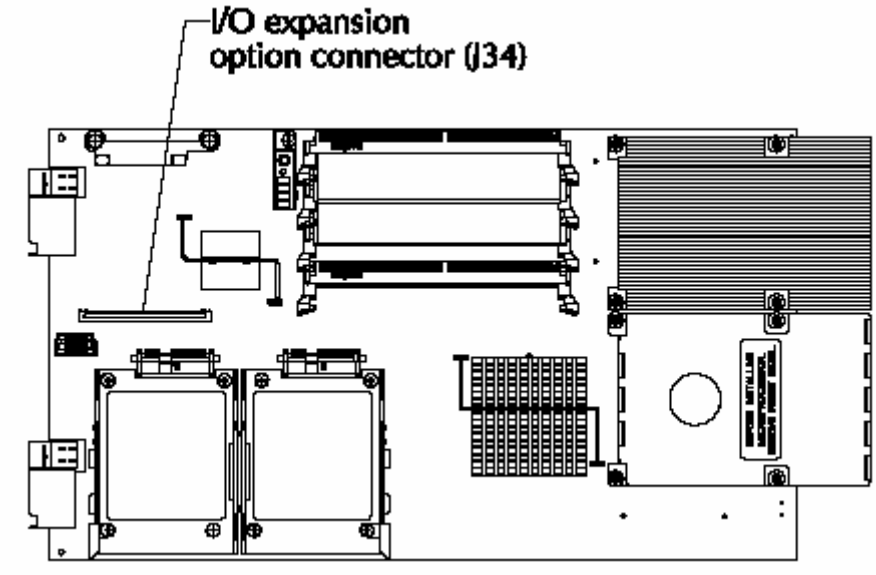

Figure 85. HS20 - 7981 system board

Slot/Device	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI? (Hot Swap)	Slot Length
Blade Server Slot 1	PCI-X	1	3	133	32	No	BladeCenter Unique Form Factor

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Chapter 28. BladeCenter® HS20 - 8843

The HS20 - 8843 requires that the BladeCenter chassis have 2000w power supplies installed.
The HS20 - 8843 can be installed into and removed from the BladeCenter chassis while the chassis is powered up. Follow the blade insertion and removal guidelines provided in the system's documentation.

Table 68. BladeCenter HS20 - 8843 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Processor Quantity (Std/Max)	Memory (Std/Max)[3]	System Management Processor[4]	Integrated Ethernet[5]	Storage Controller[6]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7, 8]	HDD/Bays (Std/Max)[8]	Expansion Cards (Std/Max)[8]
8843-05Y	2.8GHz/800MHz - 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-LTY	2.8GHz/800MHz - 1MB L2 Low Voltage	1/2	512MB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-L1Y	2.8GHz/800MHz - 1MB L2 Low Voltage	1/2	512MB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-25Y	3.2GHz/800MHz - 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-35Y	3.4GHz/800MHz - 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-45Y	3.6GHz/800MHz - 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-55Y	3.8GHz/800MHz - 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-E2Y	3.2GHz/800MHz - 2MB L2	1/2	2GB/16GB	Y	Dual GB	U320	Fixed	36.4/146.8GB	1/2	0/1
8843-E7Y	2.8GHz/800MHz - 2MB L2	1/2	512MB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-E9Y	3.8GHz/800MHz - 2MB L2	2/2	4GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-M5Y	3.0GHz/800 MHz 2MB L2 Low Voltage	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-MTY	3.0GHz 800 MHz 2MB L2 Low Voltage	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-J1Y	2.8GHz 800 MHz 1MB L2 Low Voltage	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1

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Table 68. BladeCenter HS20 - 8843 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Processor Quantity (Std/Max)	Memory (Std/Max)[3]	System Management Processor[4]	Integrated Ethernet[5]	Storage Controller[6]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7, 8]	HDD/Bays (Std/Max)[8]	Expansion Cards (Std/Max)[8]
8843-JTY	2.8GHz 800 MHz 1MB L2 Low Voltage	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-0RY	2.8GHz 800MHz 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-2RY	3.2GHz 800MHz 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-3RY	3.4GHz 800MHz 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-4RY	3.6GHz 800MHz 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1
8843-5RY	3.8GHz 800MHz 2MB L2	1/2	1GB/16GB	Y	Dual GB	U320	Fixed	0/146.8GB	0/2	0/1

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8843-01Y is 8843-01U. See the product-specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. Intel Xeon processor with Extended Memory 64 Technology (EM64T), L2 cache and an 800MHz (quad-pumped) Front Side Bus (FSB).
3. High-speed, two-way interleaved PC2-3200 RDIMMs. Maximum capacity requires replacing the standard DIMMs. Memory-mirroring, hot-spare memory and Chipkill functions are supported. Chipkill is available on DIMMs 512MB and greater.
4. System management functionality, interconnect network connectivity and console connectivity are managed through the standard management module. The standard integrated service processor monitors HS20 - 8843 system management activity, communicating with the management module in the BladeCenter.
5. Dual Broadcom 5704S Gb Ethernet controllers.
6. An integrated, single-channel, Ultra320 SCSI controller supports integrated RAID-1 and 1E. RAID-1E requires the optional BladeCenter Storage Expansion unit.
7. Maximum internal storage capacity is based on installation of two 146.8GB SCSI HDDs.
8. An optional BladeCenter expansion unit is available that attaches directly to the blade server adding two hot-swap SCSI HDD bays for a total of four HDD bays and two expansion card slots for a total of three expansion card slots.
9. Model 27Y hardware components come preconfigured and the Microsoft Windows Server 2003 operating system is pre-installed. One 2Gb fibre channel small form factor expansion card is standard.
10. HS20 Storage Server operating system supports a maximum of 4GB of memory.

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HS20 - 8843 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
25K8383	13N0699	0271	2.8GHz/800 MHz 1MB L2 Cache Low Voltage Xeon Processor	L1Y, LTY, JTY, J5Y
31R3203	25R8876	0273	3.2GHz/800MHz-2MB L2 Cache Xeon Processor	E2Y, 25Y, 27Y, 2RY
31R3204	13N0660	0274	3.4GHz/800MHz-2MB L2 Cache Xeon Processor	35Y, 3RY
31R3205	13N0696	0275	3.6GHz/800MHz-2MB L2 Cache Xeon Processor	45Y, 4RY
25R4109	25R8878	0640	2.8GHz/800MHz-2MB L2 Cache Xeon Processor	E7Y, 05Y, 0RY, ERY
25R4110	25R8877	0641	3.0GHz/800 MHz 2MB L2 Cache Low Voltage Xeon Processor	MTY, M5Y
25R4111	13N0697	0642	3.8GHz/800MHz-2MB L2 Cache Xeon Processor	55Y, 5RY
Note: HS20 - 8843 processor options support Intel's Extended Memory 64 Technology (EM64T).				

Notes:

1. One additional processor may be installed, providing a maximum of two. All processors must be identical in type, speed and cache size.

HS20 - 8843 memory options

SBB Number	Option Number	Feature Code	Memory Description
39M5816	-	0541	512MB DDR-II SDRAM DIMM NON-CHIPKILL
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
-	39M5818	-	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM NON-CHIPKILL (2X512MB KIT) Option
0001941	39M5821	1941	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X512MB KIT) Option
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
0001938	39M5809	1938	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X1GB KIT) Option
39M5810	-	0553	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
0001939	39M5812	1939	4GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X2GB KIT) Option
30R5147	-	0535	4GB PC2-3200R CL3 ECC DDR2 SDRAM RDIMM
-	30R5145	-	8GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2X4GB KIT) Option
Note: Order of Installation 1, 2 & 3, 4. A pair of DIMMs will be utilized during operation of the blade with the second pair of DIMMs designated as "Hot Spares". Memory mirroring is supported. The second set memory DIMMs (of the pair) must be identical to the first for mirroring support.			

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Notes:

1. This system is preloaded with Microsoft® Windows® Storage Server 2003, Non-Cluster Version (1-4 Proc Version) (Standard Block Mode). The maximum usable memory with Microsoft® Windows® Storage Server 2003, Non-Cluster Version (1-4 Proc Version)

Table 69. Standard Memory Configuration

Model	Std DIMM Configuration	Chipkill
01Y	2 x 256MB PC2-3200 ECC DDR2 RDIMM	N
11Y,21Y,31Y,41Y,25Y,35Y,45Y,E6Y,05Y,M5Y,MTY,55Y,E8Y, LTY, L1Y, E7Y, J1Y, JTY, 0RY, 2RY, 3RY, 4RY, 5RY, ERY	2 x 512MB PC2-3200 ECC DDR2 RDIMM	N
2EY, E2Y	2 x 1GB PC2-3200 ECC DDR2 RDIMM	Y
E9Y	2 x 2GB PC2-3200 ECC DDR2 RDIMM	N

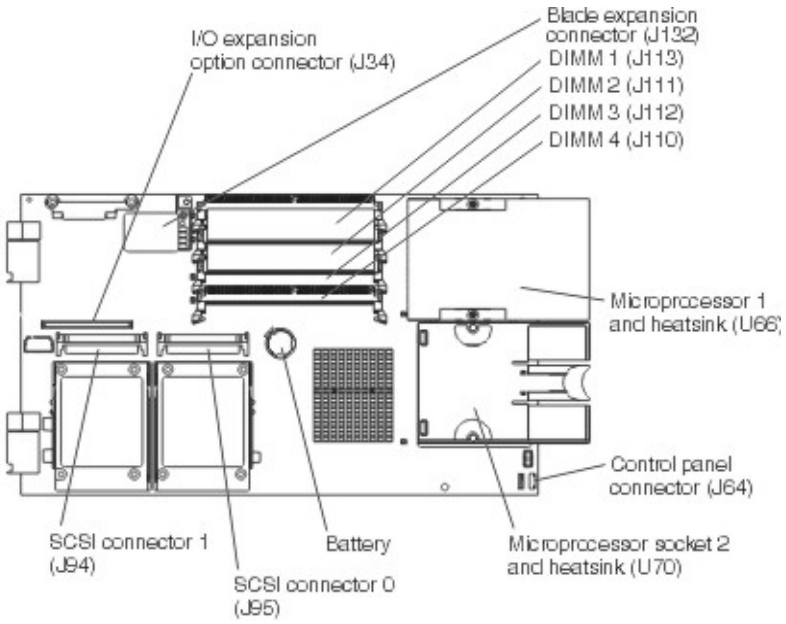

Figure 86. HS20 - 8843 system board

HS20 - 8843 hard disk drive (HDD) storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity[2]
Fixed Ultra320 HDDs						
40K1069	40K1037	5256	36GB Non Hot-Swap 2.5" 10K RPM Ultra320 SCSI HDD	2.5"	1, 2	2
40K1070	40K1038	5255	73GB Non Hot-Swap 2.5" 10K RPM Ultra320 SCSI HDD	2.5"	1, 2	2
Hot-swap Ultra320 HDDs[2]						
40K1055	40K1023	5165	73.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	3.5"	3, 4	2 BSE

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SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity[2]
40K1056	40K1024	5166	146.4GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	3.5"	3, 4	2 BSE
40K1057	40K1025	5167	300GB 10K rpm Ultra320 SCSI Hot-Swap SSL HDD	3.5"	3, 4	2 BSE
40K1058	40K1026	5168	36GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	3.5"	3, 4	2 BSE
40K1059	40K1027	5169	73GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	3.5"	3, 4	2 BSE
40K1060	40K1028	5170	146GB 15K rpm Ultra320 SCSI Hot-Swap SSL HDD	3.5"	3, 4	2 BSE
Storage Expansion						
13N2361	26K4817	4224	BladeCenter® SCSI Storage Expansion Unit[3]	-	-	1
32R8644	39R8625	4336	IBM BladeCenter® SFF SCSI Storage Expansion Unit[3]	-	-	1

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported[1]	Maximum Quantity[2]
Fixed Ultra320 HDDs						
26K4845	90P1312	5256	36.4GB 10K rpm Ultra320 SCSI HDD	SFF	1, 2	2
13N2364	90P1313	5255	73.4GB 10K rpm Ultra320 SCSI HDD	SFF	1, 2	2
90P1329	90P1305	5202	73.4GB 10K rpm Ultra320 SCSI Hot-Swap HDD	SSL	BSE 1, 2	2
90P1330	90P1306	5203	146.4GB 10K rpm Ultra320 SCSI Hot-Swap HDD	SSL	BSE 1, 2	2
Hot-swap Ultra320 HDDs[2]						
32P0747	32P0727	5215	73.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	-	-	-
Storage Expansion						
13N2361	26K4817	4224	BladeCenter SCSI Storage Expansion Unit[3]	-	-	1

Notes:
1. Installation of a second HDD will physically prevent installation of certain expansion cards and vice-versa. See I/O section for more information.
2. Requires BladeCenter Storage Expansion unit.
3. Supports two HDDs and two I/O expansion cards. See Blade Server Storage and I/O Expansion section for more information.
4. The installation of two SFF SCSI drives and one SFF daughter card is supported.

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HS20 - 8843 I/O options

SBB Number	Option Number	Feature Code	Description	Form Factor
			Blade Server Expansion Cards [1, 2]	
26K4837	73P6000	1546	Myricom® Myrinet® Expansion Card for BladeCenter [3]	StFF
26K4843	26K4842	1548	Gigabit Ethernet Expansion Card	SFF
26K4844	26K4841	1549	Fibre Channel Expansion Card	SFF
26R0891	26R0890	1577	QLogic® 4GB Fibre Channel Expansion Card for BladeCenter	SFF
39Y9116	32R1923	1458	Qlogic® iSCSI Daughter card for IBM BladeCenter	StFF
39Y9117	32R1896	1492	Cisco Systems InfiniBand HCA Expansion Card for IBM BladeCenter	SFF
39Y9185	39Y9186	2925	Emulex® 4Gb Fibre Channel Expansion Card for IBM BladeCenter	SFF
			External Disk Systems and Options	
-	-	-	-	-
			I/O Expansion	
13N2361	26K4817	4224	BladeCenter® SCSI Storage Expansion Unit[3, 5]	-
32R0792	25K8373	4244	IBM eServer BladeCenter PCI Expansion Unit 2 [6, 7]	-
39R8644	39R8625	4336	IBM BladeCenter® SFF SCSI Storage Expansion Unit	-

SBB Number	Option Number	Feature Code	Description	Form Factor
			Blade Server Expansion Cards[1, 2]	
26R1089	13N2203	1550	BladeCenter Fibre Channel Expansion Card	StFF
26K4844	26K4841	1549	Fibre Channel Expansion Card	SFF
26K4838	73P9030	1547	BladeCenter Gigabit Ethernet Expansion Card	StFF
26K4843	26K4842	1548	Gigabit Ethernet Expansion Card	SFF
26K4837	73P6000	1546	Myrinet Cluster Expansion Card[3]	StFF
26K6458	26K6457	1551	Topspin Infiniband Host Channel Adapter Expansion Card for BladeCenter	StFF
32R1801	26K6487	1559	IBM eServer BladeCenter iSCSI Expansion Card	-
			External Disk Systems and Options	
-	17011RS		TotalStorage DS300 - Single Controller	Rack 3U
-	17001RS		TotalStorage DS400 - Single Controller	Rack 3U
-	17241XX		TotalStorage DS4100 Midrange Disk System (all models)	Rack 3U
-	17226XX		TotalStorage DS4300 Midrange Disk Systems (all models)	Rack 3U
-	17429XX		TotalStorage DS4500 Midrange Disk System (all models)	Rack 4U
			I/O Expansion	
13N2361	26K4817	4224	BladeCenter SCSI Storage Expansion Unit[3, 5]	

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Notes:

1. Quantity one expansion card is supported inside the blade itself. The optional expansion unit will allow for two more cards. Installation of a StFF (standard form factor) card will physically prevent installation of a second HDD.
2. Requires appropriate I/O modules to be installed in the BladeCenter chassis. Refer to 'Blade Server Storage and I/O Expansion' for appropriate I/O module options and configuration information.
3. When expansion unit 26K4817 is attached to 8843 and an expansion card is mounted in the front slot (the slot closest to the front of the expansion unit), port 1 communicates with bay 1, and port 2 communicates with bay 2.
4. Requires an OPM I/O module to be installed in BladeCenter I/O module bay 4.
5. Supports two HDDs and two I/O expansion cards. See Blade Server Storage and I/O Expansion section for more information.
6. Not allowed if SCSI Storage Expansion Unit (Option 26K4817) or SFF SCSI Storage Expansion Unit (Option 39R8625) is selected. Allows any combination of up to two communication adapters or storage adapters.
7. IBM BladeCenter PCI Expansion Unit II requires minimum firmware level for support with the 8843 BladeCenter. Minimums are shown in the table below.

Table 70. Minimum Firmware Levels for BladeCenter 8843 with PCI Expansion Unit II (Option 25K8373)

Firmware	Level	Description
BIOS	BWBJ22A	-
DIAGS	BWYN10A	-
BMC	BWBT23A	-
MM1	BRET84C	For BladeCenter Chassis
MM1	BVET42C	For BladeCenter T Chassis

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Chapter 29. BladeCenter® HS21 - 8853

Table 71. BladeCenter HS21 - 8853 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache	Number of Processors (Std/Max)	Memory (Std/Max)[2]	System Management Processor[3]	Integrated Ethernet	Storage Controller[4]	Internal HDD Interface	Internal HDD Storage (Std/Max)[7]	HDD Bays (Std/Max)[8]	Expansion Cards (Std/Max)[8]
8853-L1Y	1.6GHz 1066MHz 2x2MB L2 Dual Core	1/2	1GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1
8853-L2Y	1.86GHz 1066MHz 2x2MB L2 Dual Core	1/2	1GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1
8853-L3Y	2.0GHz 1333MHz 2x2MB L2 Dual Core	1/2	1GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1
8853-L4Y	2.33GHz 1333MHz 2x2MB L2 Dual Core	1/2	1GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1
8853-L5Y	2.66GHz 1333MHz 2x2MB L2 Dual Core	1/2	1GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1
8853-L6Y[10]	3.0GHz 1333MHz 2x2MB L2 Dual Core	1/2	1GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1
8853-E1Y	1.6GHz 1066MHz 2x2MB L2 Dual Core	1/2	2GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1
8853-E5Y	2.66GHz 1333MHz 2x2MB L2 Dual Core	2/2	4GB/32GB[9]	Y	Dual 1GB[4]	SAS	Fixed	0/146GB	0/2	0/1

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8853-L1Y is 8853-L1U. See the product-specific Official IBM announcement letter for other country-specific GAV model numbers. GAV to MTM mapping for A.P. Geographies follow the same pattern. Substitute the last character with a country-specific designator.
2. Maximum capacity requires replacing the standard DIMMs. Memory-mirroring, hot-spare memory and Chipkill functions are supported.
3. System management functionality, interconnect network connectivity and console connectivity are managed through the standard management module. The standard integrated service processor monitors HS21 - MT 8853 system management activity, communicating with the management module in the BladeCenter.
4. Dual Broadcom 5708S Gb Ethernet controllers.
5. Dual-port Broadcom 5714S Gb Ethernet controller. These models have a total of four Gb ethernet ports.

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6. An integrated, single-channel, SAS controller supports integrated RAID-0 and 1. RAID-1E and 5 requires the optional BladeCenter Storage and I/O Expansion Blade.
7. Maximum internal storage capacity is based on installation of two 73GB SAS HDDs.
8. An optional BladeCenter Storage and I/O Expansion Blade unit is available that attaches directly to the blade server adding three hot-swap SAS HDD bays for a total of five HDD bays and adds expansion card slot capacity for a total of three expansion card slots.
9. Maximum capacity is achieved by populating all four DIMM slots with four, 4GB DIMMs and selecting the IBM BladeCenter Memory and I/O Expansion Blade (42C1600) which adds an additional four DIMM slots and one I/O expansion card slot, providing a total of eight 4GB DIMMs and three I/O expansion card slots.
10. 8853-L6Y models are supported in the BladeCenter H (8852) chassis only.

HS21 - 8853 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support
40K6907	40K1225	1311	Intel Dual Core Xeon Processor Model 5110	-
40K6911	40K1227	1313	Intel Dual Core Xeon Processor Model 5130	-
40K6914	40K1230	1316	Intel Dual Core Xeon Processor Model 5150	-
42C1621	40K1226	1329	Intel Dual Core Xeon Processor Model 5120	-
42C1622	-	1330	Intel Dual Core Xeon Processor Model 5140	-
42C1623	40K1229[6]	1331	Intel Dual Core Xeon Processor Model 5160	-

Notes:
1. A blade using a single CPU must have it installed in the CPU 1 socket.
2. The system should not be allowed to boot with an empty CPU 1 socket.
3. If the CPU 2 socket is empty, it must have a CPU heat sink filler installed. The CPU heat sink filler is a baffle which maintains proper airflow through the blade.
4. The CPU heat sink filler is required to be installed in CPU 2 socket.
5. A terminator is not required.
6. Intel Dual Core Processor Model 5160 and the 8853-L6Y models are supported in the BladeCenter H (8852) chassis only.

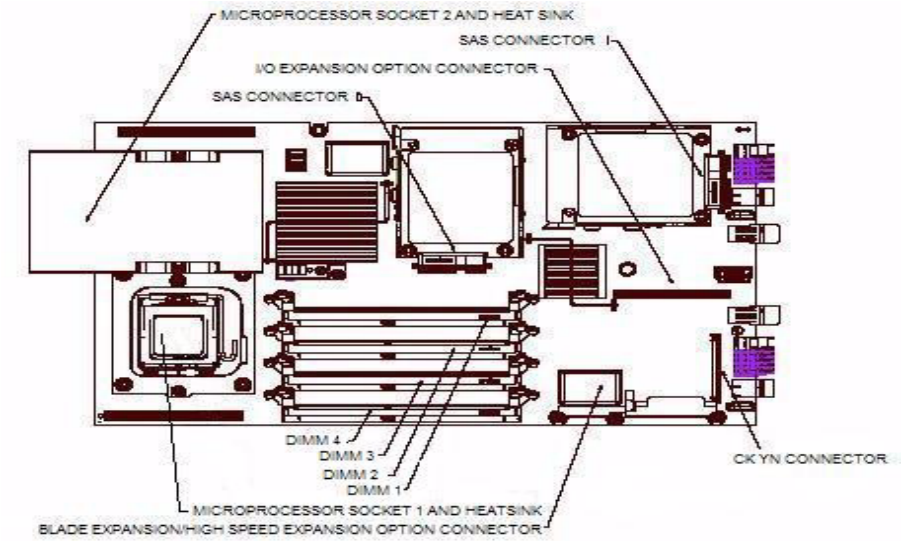

Figure 87. HS21 planar

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HS21 - 8853 memory options

SBB Number	Option Number	Feature Code	Description
39M5780	-	0546	512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
0003901	39M5782	3901	1GB (2x512MB) PC2-5300 CL5 ECC DDR2 Chipkill FB-DIMM 667MHz
39M5783	-	0542	1GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
0003904	39M5785	3904	2GB (2x1GB) PC2-5300 CL5 ECC DDR2 Chipkill FB-DIMM 667MHz
39M5789	-	0544	2GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
0003909	39M5791	3909	4GB (2x2GB) PC2-5300 CL5 ECC DDR2 Chipkill FB-DIMM 667MHz
39M5795	-	0556	4GB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz
0003915	39M5797	3915	8GB (2x4GB) PC2-5300 CL5 ECC DDR2 Chipkill FB-DIMM 667MHz

HS21 - 8853 hard disk drive (HDD) storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
SAS HDDs						
26K5780	26K5776	5297	36GB 10K SFF SAS Fixed HDD	SFF	1, 2	2
26K5781	26K5777	5298	73GB 10K SFF SAS Fixed HDD	SFF	1, 2	2
39R7392	39R7388	5152	36GB 10K SAS Hot-Swap HDD	SFF	3, 4, 5 [1]	3
39R7393	39R7389	5153	73GB 10K SAS Hot-Swap HDD	SFF	3, 4, 5 [1]	3

Notes:
1. RAID-1E and 5 requires the optional BladeCenter Storage and I/O Expansion Blade which attaches directly to the blade server, adding three hot-swap SAS HDD bays and extra expansion slot capacity for a total of five HDD bays and three expansion card slots.

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HS21 - 8853 I/O options

SBB Number	Option Number	Feature Code	Description	Form Factor
			Storage Controllers	
25R8077	25R8064	1670	IBM ServeRAID-8k SAS Controller	-
25R8080	25R8065[1]	1671	IBM ServeRAID 8k-l SAS Controller	-
39R8752	39R8743	1680	IBM Ultra320 SCSI Controller 2	-
39R8819	39R8815	1685	ServeRAID-6M Ultra320 SCSI Controller (128MB)	-
39R8820	39R8816	1686	ServeRAID-6M Ultra320 SCSI Controller (256MB)	-
			Communication Adapters	
26K4837	73P6000	1546	Myrinet Cluster Expansion Card	-
26K4843	39R8624	1548	SFF Gb Ethernet Expansion Card	SFF
26K4844	26K4841	1549	SFF Fibre Channel Expansion Card	SFF
26K5942	26K5939	1568	cKVM Feature Card for IBM BladeCenter	-
32R1761	32R1760	1466	Topspin InfiniBand 4X Host Channel Adapter Expansion Card	-
26R0891	26R0890	1577	QLogic 4Gb SFF Fibre Channel Expansion Card for IBM eServer BladeCenter	SFF
32R1924	32R1923	1459	Qlogic iSCSI Daughter card for IBM BladeCenter	StFF
39Y9185	39Y9186	2925	Emulex® 4Gb SFF Fibre Channel Expansion Card for IBM BladeCenter®	-
39Y9117	32R1896	1492	Cisco Systems InfiniBand HCA Expansion Card for IBM BladeCenter	SFF
			I/O Expansion	
31R2266	39R7563	4265	IBM BladeCenter Storage Expansion Unit	-

Notes:
1. Comes standard with option 39R7563.

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Chapter 30. BladeCenter® HS40

Table 72. BladeCenter HS40 At-A-Glance

Part Number[1]	Withdrawal Date[2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Processor Quantity (Std/Max)	Memory (Std/Max)[4]	System Management Processor[5]	Integrated Ethernet[6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8]	Expansion Cards (Std/Max)[9]
8839-51X	May 30	2.2/400-2MB L3	1/4	1GB/16GB	Y	4 x 1Gb	Dual ATA-100	Fixed	0/80GB	0/2
8839-61X	May 30	2.7/400-2MB L3	1/4	2GB/16GB	Y	4 x 1Gb	Dual ATA-100	Fixed	0/80GB	0/2
8839-6TX[1]	May 30	2.7/400-2MB L3	1/4	2GB/16GB	Y	4 x 1Gb	Dual ATA-100	Fixed	0/80GB	0/2
8839-71X	May 30	3.0/400-2MB L3	1/4	2GB/16GB	Y	4 x 1Gb	Dual ATA-100	Fixed	0/80GB	0/2
Note: 4-way, 2U blade servers install into a supported BladeCenter or BladeCenter T chassis. Ship without keyboard and mouse.										

Notes:
1. Blade server models xTx are designed to support the telecommunications industry.
2. Not available from IBM after this date. Business Partner Inventory may be available.
3. Intel Xeon Processor MP with L2 cache (512KB), L3 cache (see table) and a 400MHz (quad-pumped) Front Side Bus (FSB).
4. Memory is two-way interleaved, PC2100 ECC DDR RDIMMs supporting Chipkill technology.
5. System management functionality, interconnect network connectivity and console connectivity are managed through the standard management module. The standard integrated service processor monitors HS40 system management activity, communicating with the management module in the BladeCenter.
6. Four Ethernet connections via one integrated dual Gb controller and two integrated single Gb controllers (Broadcom BCM5704S).
7. Integrated mirroring is supported using IDE HDDs. However, when two IDE HDDs are installed, no I/O expansion cards can be installed.
8. An optional SCSI expansion unit is available that attaches directly to the bladeserver adding two SCSI HDD bays. See HDD section for more information.
9. Each installed expansion card will physically prevent installation of one IDE HDD and vice versa.

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HS40 processor options

SBB Number	Option Number	Feature Code	Processor Upgrades	SMP Support[1]
26K4854	13N0656	0312	2.2GHz/400MHz-2MB L3 Cache Xeon Processor MP	5xX
26K4855	13N0655	0313	2.7GHz/400MHz-2MB L3 Cache Xeon Processor MP	6xX
26K4856	13N0654	0314	3.0GHz/400MHz-4MB L3 Cache Xeon Processor MP	7xX

Notes:
1. Up to three additional processors may be installed, providing a maximum of four. All processors must be identical in type, speed and cache size.

HS40 memory options

SBB Number	Option Number	Feature Code	Memory Description[1, 2]
37L3538	33L5038	0507	512MB PC2100 ECC DDR RDIMM
32P9223	33L5040	0509	2GB PC2100 ECC DDR RDIMM
Note: DIMMs are installed in matched pairs using the following population order: DIMM1-A & DIMM1-B, DIMM2-A & DIMM2-B, DIMM3-A & DIMM3-B, DIMM4-A & DIMM4-B.			

Notes:
1. BladeCenter HS40 supports up to 16GB of Chipkill memory via 8 DIMM slots. Removal of standard memory is required to achieve the supported maximum amount.
2. Due to two-way interleaving, installation of memory options in pairs is required.

HS40 hard disk drive (HDD) storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity[1]
IDE HDDs[2]						
48P7099	25R6906	5213	40GB IDE HDD	Slim	1, 2	2
32P0747	32P0727	5215	73.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	Slim	3, 4	2
32P0748	32P0728	5216	146.4GB 10K rpm Ultra320 SCSI Hot-swap HDD	Slim	3, 4	2
Storage Expansion [4]						
26K4852	26K4847	4203	BladeCenter SCSI Storage Expansion Unit[5]	-	-	-
13N1675	90P3721	4202	BladeCenter PCI Expansion Unit	-	-	-

Notes:
1. Each installed HDD will physically prevent installation of one expansion card.
2. Integrated mirroring is supported using these HDDs.
3. The flash disk drives are IDE HDDs and adhere to the same cabling and configuration rules as the standard IDE HDDs. Both can be installed in the same blade server.
4. Blade servers support attachment of any one expansion unit.
5. Supports two SCSI HDDs. See Blade Server Storage and I/O Expansion section for more information.

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HS40 I/O options

SBB Number	Option Number	Feature Code	Description	Form Factor
			Blade Server Expansion Cards[1, 2]	
13N2204	13N2203	1519	BladeCenter Fibre Channel Expansion Card	StFF
73P9029	73P9030	1515	BladeCenter Gigabit Ethernet Expansion Card	StFF
90P3849	90P3777	1517	Intel Gigabit Ethernet Expansion Card	-
73P5999	73P6000	1516	Myricom® Myrinet® Cluster Expansion Card[3]	StFF
26K6458	26K6457	1520	Topspin InfiniBand Host Channel Adapter Expansion Card for BladeCenter	StFF
32R1802	26K6487	1559	BladeCenter iSCSI Expansion Card	StFF
32R1924	32R1923	1459	Qlogic® iSCSI Daughter card for IBM BladeCenter	StFF

Notes:
1. Two identical expansion cards are allowed. Each installed expansion card will physically prevent installation of one IDE HDD and vice-versa.
2. Requires appropriate I/O modules to be installed in the BladeCenter chassis. Refer to 'BladeCenter I/O Options' for I/O option and configuration information.
3. Requires an OPM I/O module to be installed in BladeCenter I/O module bay 4.

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Chapter 31. BladeCenter® JS20

Table 73. BladeCenter JS20 At-A-Glance

Part Number[1]	CPU/FSB Speed (GHz/MHz) - Cache[2]	Processor Quantity (Std/Max)	Memory (Std/Max)[3]	System Management Processor[4]	Integrated Ethernet[5]	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)[6]	Expansion Cards (Std/Max)[7]
8842-RTY[8]	2x 2.2GHz/1.1GHz 512KB L2 Cache PowerPC 970 Processor	2/2	2GB/8GB[9]	Y	Dual 1Gb	Dual ATA 100	Fixed	0/120GB	0/1

Notes:
1. 2-way blade server installs in a BladeCenter chassis. KVM support is not provided; use serial over LAN communication to perform local, network operating system or software installation as an alternative to KVM. Up to 14 JS20 blade servers are supported in the BladeCenter chassis and up to 8 JS20 blade servers are supported in the BladeCenter T chassis. Power modules in BladeCenter models 1XX will need to be upgraded to 1800w power modules in order to support JS20 blade servers.
2. PowerPC 970 processors with full-speed L2 cache. All models have a 1.1GHz Front-side Bus (FSB).
3. Memory is two-way interleaved, PC2700 ECC DDR RDIMMs.
4. System management functionality, interconnect network connectivity and console connectivity are managed through the standard management module. The standard integrated service processor monitors JS20 system management activity, communicating with the management module in the BladeCenter.
5. Broadcom dual-port integrated copper gigabit Ethernet controller.
6. Maximum HDD storage capacity is based on installation of two 60GB 5400rpm ATA-100 HDDs.
7. Installation of an I/O expansion card prevents installation of a 2nd IDE HDD.
8. NEBS compliant.
9. Maximum memory capacity is based on installation of four 2GB PC2700 ECC DDR DIMMs.

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JS20 memory options

SBB Number	Option Number	Feature Code	Memory Description[1]
39M5837	39M5839	1222	1GB DDR1-333MHz PC2700
39M5840	39M5843	1223	2GB DDR1-333MHz PC2700

Notes:
1. DIMMs are installed in matched pairs using the following population order: DIMM3 & DIMM4, DIMM1 & DIMM2.

Table 74. Standard Memory Configuration

Model	Std DIMM Configuration
RTY	2 x 1GB PC2700 ECC DDR RDIMM

JS20 hard disk drive (HDD) storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity[1]
IDE HDDs						
48P7099	25R6906	5213	IBM BladeCenter® 40GB 5400rpm ATA-100 HDD	SFF	1, 2	2
25R6905	25R6904	5244	IBM BladeCenter® 60GB 5400rpm ATA-100 HDD	SFF	1, 2	2

Notes:
1. Up to two IDE HDDs may be installed in each JS20. A second IDE HDD cannot be added if an I/O expansion card is installed.

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JS20 I/O options

SBB Number	Option Number	Feature Code	Description	Form Factor
Blade Server Expansion Cards[1, 2]				
73P6113	73P6112	1543	JS20 Fibre Channel Expansion Card	-
73P9029	73P9030	1515	IBM BladeCenter Gigabit Ethernet Expansion Card	SFF
73P5999	73P6000	1516	Myricom® Myrinet® Expansion Card for BladeCenter	StFF
32R1897	32R1896	1461	Cisco Systems InfiniBand 1X HCA Expansion Card for IBM BladeCenter	StFF
39Y9123	26R0884	1597	QLogic® 4GB Standard Fibre Channel Expansion Card for BladeCenter	StFF

Notes:
1. One expansion card is allowed per blade server and installs over IDE HDD bay 2, preventing installation of second IDE HDD.
2. Requires appropriate I/O modules to be installed in the BladeCenter chassis. Refer to 'Blade Server Storage and I/O Expansion' for appropriate I/O module options and configuration information.

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Chapter 32. BladeCenter® JS21

Table 75. BladeCenter JS21 At-A-Glance

Part Number	CPU/FSB Speed (GHz/MHz) - Cache	Processor Quantity (Std/Max)	Memory (Std/Max)	System Management Processor	Integrated Ethernet	Storage Controller	Internal HDD Interface	Internal HDD Storage (Std/Max)	HDD Bays (Std/Max)	Expansion Cards (Std/Max)
8844-31Y	2.7 GHz PowerPC 970MP Single Core	2/2	1GB/16GB	Y	Dual 1Gb	SAS	Fixed	0GB/146GB	1/2	0/1
8844-51Y	2.5 GHz PowerPC 970MP Dual Core	2/2	2GB/16GB	Y	Dual 1Gb	SAS	Fixed	0GB/146GB	1/2	0/1
8844-E3Y	2.7 GHz PowerPC 970MP Single Core	2/2	1GB/16GB	Y	Dual 1Gb	SAS	Fixed	73GB/146GB	1/2	0/1
8844-E5Y	2.5 GHz PowerPC 970MP Dual Core	2/2	2GB/16GB	Y	Dual 1Gb	SAS	Fixed	73GB/146GB	1/2	0/1
Note: The installed DIMMs on a JS21 Blade must all be PC2-3200 (400MHz DDR2) or all PC2-4300 (533MHz DDR2), a mix is not supported. Memory must be installed in pairs. Models 31Y and 51Y come with 400MHz DIMMs. E3Y and E5Y come with 533MHz DIMMs.										

JS21 memory options

SBB Number	Option Number	Feature Code	Description
			Memory DIMMs[1]
39M5819	-	0554	512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
0001941	39M5821	1941	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2x512MB KIT) Option
39M5807	-	0552	1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
0001938	39M5809	1938	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2x1GB KIT) Option
39M5810	-	0553	2GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
0001939	39M5812	1939	4GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2x2GB KIT) Option
41Y2700	-	0590	4GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM

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SBB Number	Option Number	Feature Code	Description
0003913	41Y2703	3913	8GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM (2x4GB KIT) Option
0001931	41Y2707	1931	1GB PC2-4200 CL4 ECC DDR2 SDRAM RDIMM (2x512MB KIT) Option
41Y2708	-	0591	1GB PC2-4200 CL4 ECC DDR2 SDRAM RDIMM
41Y2712	-	0592	2GB PC2-4200 CL4 ECC DDR2 SDRAM RDIMM
0001932	41Y2711	1932	2GB PC2-4200 CL4 ECC DDR2 SDRAM RDIMM (2x1GB KIT) Option
0001933	41Y2715	1933	4GB PC2-4200 CL4 ECC DDR2 SDRAM RDIMM (2x2GB KIT) Option

Notes:

1. The installed DIMMs on a JS21 Blade must all be PC2-3200 (400MHz DDR2) or all PC2-4300 (533MHz DDR2), a mix is not supported. Memory must be installed in pairs.

Table 76. Standard Memory Configuration

Model	Std. DIMM Configuration
8844-31X	2x512MB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
8844-51X	2x1GB PC2-3200 CL3 ECC DDR2 SDRAM RDIMM
8844-E3X	2x1GB PC2-4200 CL3 ECC DDR2 SDRAM RDIMM
8844-E5X	2x2GB PC2-4200 CL3 ECC DDR2 SDRAM RDIMM

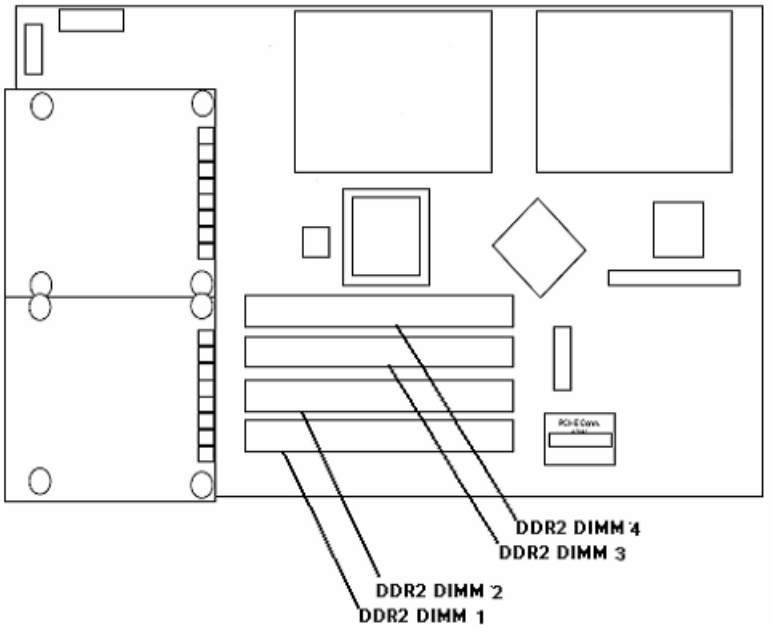

Figure 88. JS21 memory DIMMs

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JS21 hard disk drive (HDD) storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Maximum Quantity[1]
SAS HDDs						
26K5780	26K5776	5297	36GB 10K SFF SAS NHS HDD	2.5"	1, 2	2
26K5781	26K5777	5298	73GB 10K SFF SAS NHS HDD	2.5"	1, 2	2

Notes:

1. Up to two SAS HDDs may be installed in each JS21.

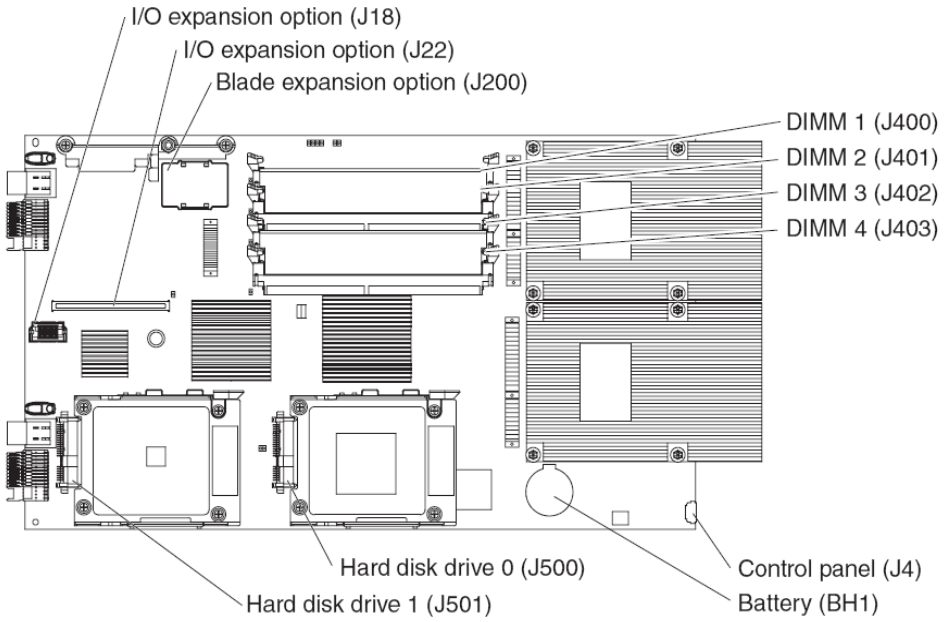

Figure 89. JS21 SAS HDDs

Bay	Form Factor	Height	Front Access	Usage
Blade Front	SFF	2.5"	N	HDD
Blade Rear	SFF	2.5"	N	HDD

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JS21 I/O options

SBB Number	Option Number	Feature Code	Description	Adapter Length	PCI Support	Slots Supported	Hot Plug Capable	Max Supported
Networking								
26K4843	39R8624	1548	SFF Gb Ethernet Exp. Card	Daughter Card	-	1	No	1
26R0891	26R0890	1577	QLogic® 4Gb SFF Fibre Channel Expansion Card for IBM BladeCenter	Daughter Card	-	1	No	1
26R0885	26R0884	1581	QLogic® 4Gb Fibre Channel Expansion Card for IBM eServer BladeCenter	Daughter Card	-	1, 3	No	2
39Y9116	32R1923	1458	Qlogic® iSCSI Daughter card for IBM BladeCenter	Daughter Card	-	1, 2, 3	No	3
73P5999	73P6000	1516	Myricom® Myrinet® Cluster Expansion Card[1]	Daughter Card	-	1	No	1
73P9029	73P9030	1515	BladeCenter Gigabit Ethernet Expansion Card[1]	Daughter Card	-	1	No	1
39Y9117	32R1896	1492	Cisco Systems InfiniBand 1X HCA Expansion Card for IBM BladeCenter[1]	Daughter Card	-	1, 3	No	2
39Y9185	39Y9186	2925	Emulex® 4Gb SFF Fibre Channel Expansion Card for IBM BladeCenter®	Daughter Card	-	1, 3	No	2

Notes:
1. If this expansion card is selected, a second hard drive cannot be selected.

Slot/Device	Type	Bus	Voltage (V)	Frequency MHz	Data Path	Active PCI? (Hot Swap)	Slot Length
Blade Server Slot 1	PCI-X	7	3.3	100	64	No	BladeCenter Unique Form Factor

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Chapter 33. BladeCenter® LS20

Table 77. BladeCenter LS20 At-A-Glance

Part Number[1,2]	CPU/FSB Speed (GHz/MHz) - Cache[3]	Number of Processors (Std/Max)	Memory (Std/Max)[4]	System Management Processor[5]	Integrated Ethernet [6]	Storage Controller[7]	Internal HDD Interface	Internal HDD Storage (Std/Max)[8]	Optical Drive	HDD Bays (Total/Avail)	Expansion Cards (Std/Max)[9]
8850-71Y	2.4GHz - 1MB L2 Single Core	1/2	1GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-81Y	2.6GHz - 1MB L2 Single Core	1/2	2GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-55Y[10]	2.0GHz - 2MB L2 Per Processor Dual Core	1/2	1GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-65Y[10]	2.2GHz - 2MB L2 Per Processor Dual Core	1/2	1GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-72Y	2.4GHz - 1MB L2 Single Core	1/2	1GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-82Y	2.6GHz - 1MB L2 Single Core	1/2	2GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-92Y	2.8GHz - 1MB L2 Single Core	1/2	2GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-56Y[10]	2.0GHz - 2MB L2 Per Processor Dual Core	1/2	1GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-66Y[10]	2.2MHz - 2MB L2 Per Processor Dual Core	1/2	1GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1
8850-76Y[10]	2.4MHz - 2MB L2 Per Processor Dual Core	1/2	1GB/16GB	Y	Dual 1GB	U320	Fixed	0/146.8GB	N	2/2	0/1

Notes:

1. Model numbers provided are worldwide generally available variant (GAV) model numbers which are not orderable as listed and need to be modified by country. The U.S. GAV model numbers use the following nomenclature: xxU. For example, the U.S. orderable part number for 8850-51Y is 8850-51U. See the product-specific Official IBM announcement letter for other country-specific GAV model numbers.

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GAV to MTM mapping for AP Geographies follow the same pattern. Substitute the last character with a country-specific designator.

2. The LS20 blade server installs in a BladeCenter chassis and ships without a keyboard and mouse. Up to fourteen AMD Opteron LS20 for BladeCenter blade servers can be installed in a new BladeCenter chassis (8677-3XX) or in an existing BladeCenter chassis (8677-1XX or 8677-2XX) at full density once it has been upgraded with the new 2000-watt power supply option (26K4816). In addition, these new LS20 blade servers can be installed in the BladeCenter T (8720-1RX and 8730-1RX).
3. AMD Opteron processor is designed for high-performance workstation and server applications. Provides three high-performance HyperTransport links to I/O, as well as a 128-bit high-performance DDR SDRAM memory controller.
4. Memory is two-way interleaved, PC-3200 CL3 ECC DDR2 RDIMM supporting Chipkill technology.
5. The standard integrated service processor monitors LS20 system management activity, communicating with the management module in the BladeCenter.
6. Dual Broadcom 5704S Gigabit Ethernet connections with teaming and failover support
7. An integrated, single-channel, Ultra320 SCSI controller supports integrated RAID-1.
8. Maximum HDD storage capacity is based on installation of two 73.4GB 10K rpm Ultra320 SFF SCSI HDD.
9. Installing a legacy form factor I/O expansion card may prevent installation of a second SCSI HDD.
10. This machine type includes dual core AMD Opteron Processors and has 1MB per processing core.

LS20 processor options

SBB Number	Option Number	Feature Code	Processor Options	SMP Support[1]
25R7702	25R8892	0276	Opteron Processor Model 250	71Y, 72Y
31R3359	25R8893	0277	Opteron Processor Model 252	81Y, 82Y
25R8536	25R8937	1207	Opteron Processor Model 254	92Y
39M4616	25R8894	0279	Dual-Core Opteron Processor Model 270	55Y, 56Y
25R8445	25R8895	0625	Dual-Core Opteron Processor Model 275	65Y, 66Y
25R8535	25R8896	1208	Dual-Core Opteron Processor Model 280	76Y

Notes:

1. Microprocessors must be of the same type and clock speed on each AMD Opteron LS20 for IBM eServer BladeCenter. Mixing microprocessors of different speeds or cache size or upgrading the base processors is not supported.

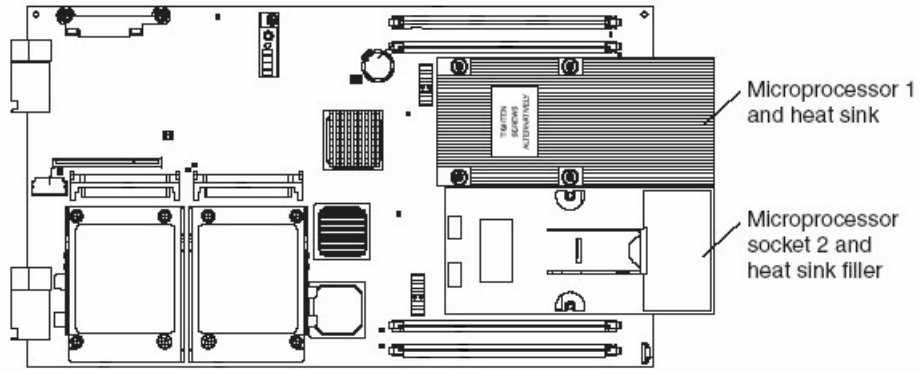

Figure 90. LS20 planar

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LS20 memory options

SBB Number	Option Number	Feature Code	Description
73P5136	-	0520	512MB PC2700 CL3 ECC DDR SDRAM VLP RDIMM
39M5844	-	0516	512MB PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
73P5137	-	0521	1GB PC2700 CL3 ECC DDR SDRAM VLP RDIMM
39M5847	-	0517	1GB PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
0001942	39M5849	1942	2GB (2x1GB Kit) PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
73P5138	-	0522	2GB PC2700 CL3 ECC DDR SDRAM VLP RDIMM
39M5850	-	0518	2GB PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
73P5139	-	0523	4GB PC2700 CL3 ECC DDR SDRAM VLP RDIMM
73P5135	-	-	4GB PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
0001943	39M5852	1943	4GB (2x2GB Kit) PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
39M5853	41Y2756	0519	4GB PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
39M5853	41Y2756	0519	8GB (2x4GB Kit) PC-3200 CL3 ECC DDR2 SDRAM VLP RDIMM
Note: The LS20 uses a minimum of 2 PC2-3200 DDR2 SDRAM Very Low Profile (VLP) DIMMs. The memory subsystem is a 2-way interleaved subsystem; memory must be populated in pairs of 2 identical DIMMs per processor installed. The two members of the set must be matched, but the sets do not have to be matched. The DIMMs should be installed in the following order: DIMMs 1 & 2 (Set 1) with processor 1, DIMMs 3 & 4 (Set 2) with processor 2. The absence of processor 2 will limit the potential DIMM slots to the pair pertaining to processor 1. The LS20 supports Chipkill. Mixing Chipkill DIMMs with non-Chipkill DIMMs will disable all Chipkill function.			

Table 78. Standard Memory Configuration

Model	Std DIMM Configuration	Chipkill
71Y, 55Y, 56Y, 65Y, 66Y, 72Y, 76Y	2 x 512MB PC2-3200 ECC DDR2 RDIMM	N
81Y, 82Y, 92Y	2 x 1GB PC2-3200 ECC DDR2 RDIMM	Y

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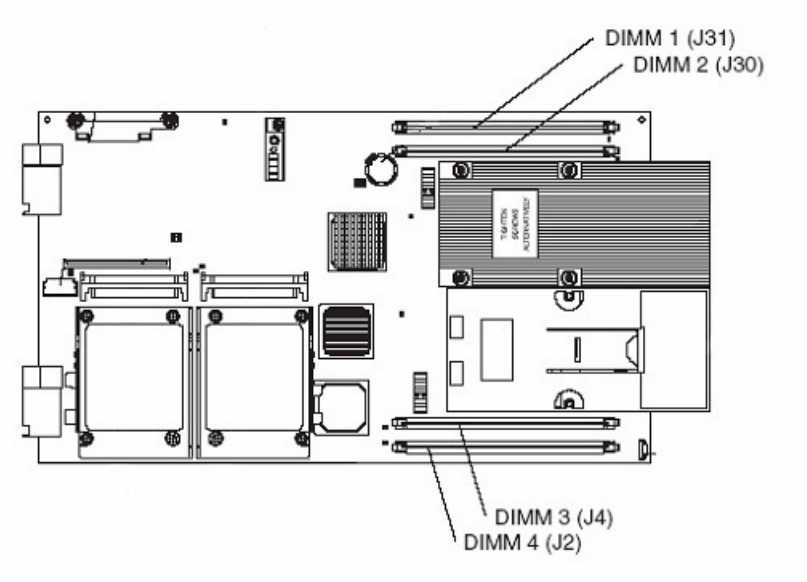

Figure 91. LS20 system board

LS20 hard disk drive (HDD) storage options

SBB Number	Option Number	Feature Code	Description	Height	Bays Supported	Max Qty
Fixed (Neonate-swap) Ultra320 HDDs						
40K1069	40K1037	5256	36GB Non Hot-Swap 2.5" 10K RPM Ultra320 SCSI HDD	SFF	1, 2	2
40K1070	40K1038	5255	73GB Non Hot-Swap 2.5" 10K RPM Ultra320 SCSI HDD	SFF	1, 2	2
Note: LS20 supports the installation of two SFF SCSI drives and one SFF daughter card. One SFF SCSI drive and a SFF daughter card with a StFF daughter card is not supported.						

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LS20 I/O options

SBB Number	Option Number	Feature Code	Description	Form Factor
			Blade Server Expansion Cards[1, 2]	
26K4837	73P6000	1546	Myricom® Myrinet® Expansion Card[3]	StFF
26K4843	39R8624	1548	IBM BladeCenter® SFF Gigabit Ethernet Expansion Card	SFF
26K4844	26K4841	1549	Fibre Channel Expansion Card	SFF
26R0891	26R0890	1577	QLogic® 4GB SFF Fibre Channel Expansion Card for BladeCenter	SFF
32R1924	32R1923	1458	QLogic® iSCSI Daughter card for IBM BladeCenter	StFF
32R1897	32R1896	1492	Cisco Systems InfiniBand 1X HCA Expansion Card for IBM BladeCenter	SFF
39Y9185	39Y9186	2925	Emulex® 4Gb SFF Fibre Channel Expansion Card for IBM BladeCenter	SFF

Notes:
1. Quantity one expansion card is supported inside the blade itself. Installation of a StFF (standard form factor) expansion card will physically prevent installation of a second HDD.
2. Requires appropriate I/O modules to be installed in the BladeCenter chassis. Refer to 'Blade Server Storage and I/O Expansion' for appropriate I/O module options and configuration information.
3. Requires an OPM I/O module to be installed in BladeCenter I/O module bay 4.

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Chapter 34. Blade server storage and I/O expansion

Table 79. BladeCenter® Storage and I/ O Expansion Unit

SBB Number	Option Number	Feature Code	Description	Form Factor	Slots Supported[1]	Maximum Quantity
31R2266	39R7563[2]	4265	IBM BladeCenter Storage and I/O Expansion Blade	-	-	-
Hot-Swap SAS HDDs						
39R7392	39R7388[3]	5152	36GB 10K SAS SFF HS HDD	SFF	1, 2, 3	2 SIO
39R7393	39R7389[3]	5153	73GB 10K SAS SFF HS HDD	SFF	1, 2, 3	2 SIO
Blade Server RAID Adapter[4]						
25R8077	25R8064	1670	IBM ServeRAID 8k SAS Controller	StFF	-	1

Notes:
1. Embedded support is provided for RAID levels 0 and 1.
2. Option is supported on BladeCenter 8853 only. Supports up to three 2.5" SAS HDDs.
3. Options apply to IBM BladeCenter Storage and I/O Expansion Unit only.
4. Requires appropriate I/O modules to be installed in the BladeCenter Chassis. Refer to BladeCenter Chassis I/O Options for more information.

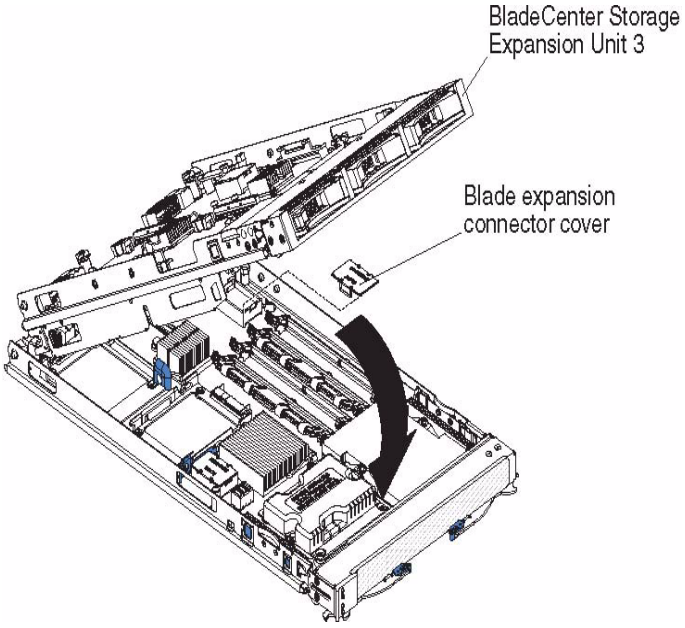

Figure 92. BladeCenter Storage and Expansion Unit 3, View 1

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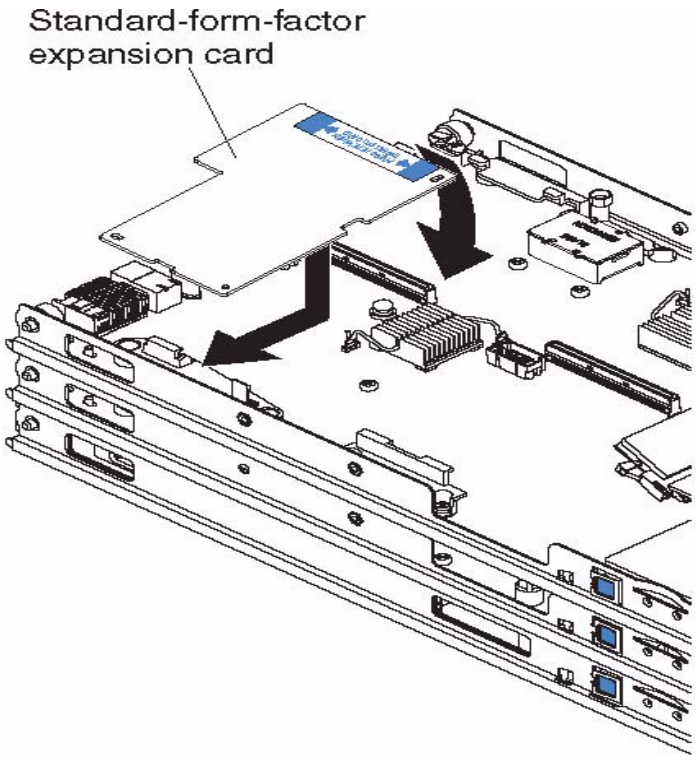

Figure 93. BladeCenter Storage and Expansion Unit 3, View 2

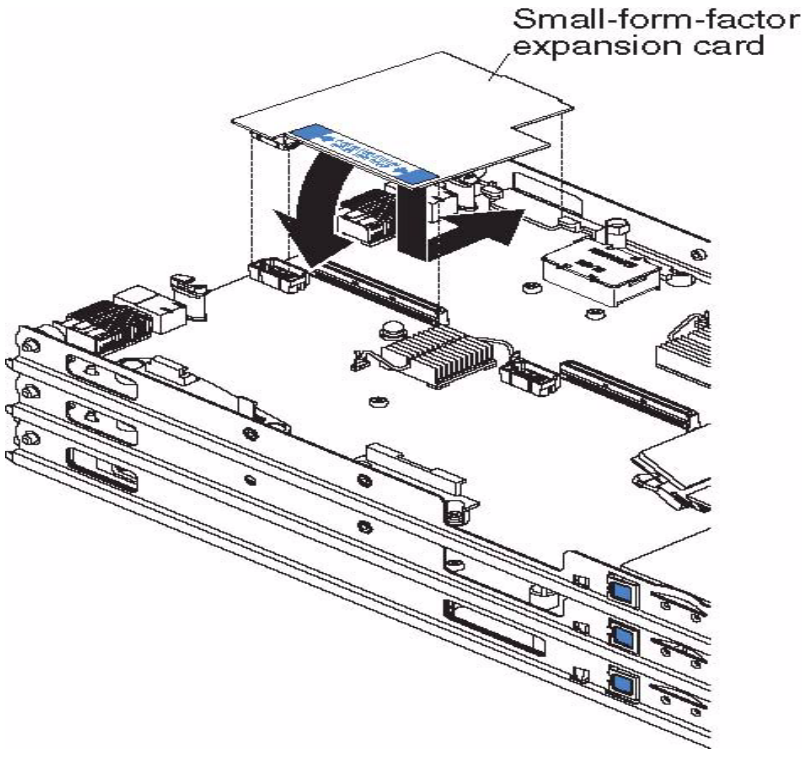

Figure 94. BladeCenter Storage and Expansion Unit 3, View 3

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Table 80. IBM eServer BladeCenter PCI Expansion Unit 2

SBB Number	Option Number	Feature Code	Description
32R0792	25K8373	4244	IBM eServer BladeCenter PCI Expansion Unit 2
			PCI Expansion Unit 2
24P0963	24P0960	1650	DS4000 Host Bus Adapter
39R8820	39R8816	1686	ServeRAID-6M Controller (256MB Cache)
39R8819	39R8815	1685	ServeRAID-6M Controller (128MB Cache)
71P8614	71P8594	1652	Single Channel Ultra320 SCSI Controller
31P9605	31P9601	1512	PRO/1000 MT Server Ethernet Adapter by Intel
32P9296	22P7801	1501	NetXtreme 1000 SX Fiber Ethernet Adapter
31P6305	31P6301	1502	NetXtreme 1000 T Ethernet Adapter (copper)
32P9298	31P6401	1503	NetXtreme 1000 T Dual Port Ethernet Adapter (copper)
Note: The BladeCenter PCI I/O Expansion Unit provides two 64-bit/100MHz PCI-X slots. The expansion unit itself occupies one BladeCenter slot. The expansion unit attaches to the blade server and both units are installed together into the BladeCenter chassis as a single unit occupying two BladeCenter slots.			

Notes:
1. PCI adapter options for the BladeCenter PCI I/O Expansion Unit. PCI adapters in the unit provide external connections only.

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Chapter 35. VMware offerings

Note: VMware support is required when purchasing VMware software.

Virtual machine software for consolidating and partitioning systems in high-performance environments.

Table 81. VMWare ESX Server and Add-Ons

Option Number	Description
	VMware ESX Server [1, 2]
481722X	VMware ESX Server 2.x (1-2 processors)
4817223	VMware ESX Server (1-2 processors) w/ 3 year software subscription
4817225	VMware ESX Server (1-2 processors) w/ 5 year software subscription
481724X	VMware ESX Server 2.x (3-4 processors)
4817243	VMware ESX Server (3-4 processors) w/ 3 year software subscription
4817245	VMware ESX Server (3-4 processors) w/ 5 year software subscription
481728X	VMware ESX Server 2.x (5-8 processors)
4817283	VMware ESX Server (5-8 processors) w/ 3 year software subscription
4817285	VMware ESX Server (5-8 processors) w/ 5 year software subscription
481726X	VMware ESX Server 2.x (8-16 processors)
4817263	VMware ESX Server (9-16 processors) w/ 3 year software subscription
4817265	VMware ESX Server (9-16 processors) w/ 5 year software subscription
481739X	VMware ESX Server 2.x Upgrade (2-4 processors)
48173AX	VMware ESX Server 2.x Upgrade (4-8 processors)
48173BX	VMware ESX Server 2.x Upgrade (8-16 processors)
48173GX	ESX Server 2 Upgrade (2 to 4 Processors) w/3 Year Subscription
48173HX	ESX Server 2 Upgrade (2 to 4 Processors) w/5 Year Subscription
48173JX	ESX Server 2 Upgrade (4 to 8 Processors) w/ 3 Year Subscription
48173KX	ESX Server 2 Upgrade (4 to 8 Processors) w/5 Year Subscription
48173LX	ESX Server 2 Upgrade (8 to 16 Processors) w/3 Year Subscription
48173MX	ESX Server 2 Upgrade (8 to 16 Processors) w/5 Year Subscription
4817U6X	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (2 Processors)
4817UCX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (2 Processors) w/3 Year Subscription
4817UJX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (2 Processors) w/5 Year Subscription
4817U7X	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (4 Processors)
4817UDX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (4 Processors) w/3 Year Subscription
4817UKX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (4 Processors) w/5 Year Subscription
4817U8X	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (8 Processors)

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Table 81. VMWare ESX Server and Add-Ons (continued)

Option Number	Description
4817UEX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (8 Processors) w/3 Year Subscription
4817ULX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (8 Processors) w/5 Year Subscription
4817U9X	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (16 Processors)
4817UFX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (16 Processors) w/3 Year Subscription
4817UMX	VMware ESX Server 2 to Virtual Infrastructure Node Upgrade (16 Processors) w/5 Year Subscription
VMware Virtual SMP [3]	
48173CX	VMware Virtual SMP (2 processors)
48173DX	VMware Virtual SMP (4 processors)
48173EX	VMware Virtual SMP (8 processors)
48173FX	VMware Virtual SMP (16 processors)
48173NX	VMware Virtual SMP - 2 Processor Version w/3 Year Subscription
48173PX	VMware Virtual SMP - 2 Processor Version w/5 Year Subscription
48173QX	VMware Virtual SMP - 4 Processor Version w/3 Year Subscription
48173RX	VMware Virtual SMP - 4 Processor Version w/5 Year Subscription
48173SX	VMware Virtual SMP - 8 Processor Version w/3 Year Subscription
48173TX	VMware Virtual SMP - 8 Processor Version w/5 Year Subscription
48173UX	VMware Virtual SMP - 16 Processor Version w/3 Year Subscription
48173VX	VMware Virtual SMP - 16 Processor Version w/5 Year Subscription
4817U1X	VMware Virtual SMP Upgrade (2-4 processors)
4817U2X	VMware Virtual SMP Upgrade (4-8 processors)
4817U3X	VMware Virtual SMP Upgrade (9-16 processors)
4817UTX	Virtual SMP Upgrade (2 to 4 Processors) w/3 Year Subscription
4817UNX	Virtual SMP Upgrade (2 to 4 Processors) w/5 Year Subscription
4817UPX	Virtual SMP Upgrade (4 to 8 Processors) w/3 Year Subscription
4817UQX	Virtual SMP Upgrade (4 to 8 Processors) w/5 Year Subscription
4817URX	Virtual SMP Upgrade (8 to 16 Processors) w/3 Year Subscription
4817USX	Virtual SMP Upgrade (8 to 16 Processors) w/5 Year Subscription

Notes:
1. Orderable only when configured with an xSeries server, not separately.
2. When ordering VMware ESX Server 2 products, the latest 2.x version will be shipped.
3. Add-on module to VMware ESX Server 2.x that allows a single virtual machine to span multiple physical processors.

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Virtual Infrastructure management software for environments using VMware ESX Server.

Table 82. VMware VirtualCenter and Add-Ons for ESX and GSX

Option Number	Description
Management Server and Agent for ESX	
4817M1X	VMware VirtualCenter Management Server
4817M13	VMware VirtualCenter Management Server w/ 3 year subscription
4817M15	VMware VirtualCenter Management Server w/ 5 year subscription
4817M2X	VMware VirtualCenter Agent (2 processors)
4817M3X	VMware VirtualCenter Agent (4 processors)
4817M4X	VMware VirtualCenter Agent (8 processors)
4817M5X	VMware VirtualCenter Agent (16 processors)
4817MHX	VMware VirtualCenter Agent for 2 Processors w/3 Year Subscription
4817MJX	VMware VirtualCenter Agent for 2 Processors w/5 Year Subscription
Agent for GSX	
4817GHX	VirtualCenter Agent for GSX (2 Processors)
4817GMX	VirtualCenter Agent for GSX (2 Processors) w/ 3 Year Subscription
4817GNX	VirtualCenter Agent for GSX (2 Processors) w/ 5 Year Subscription
VMotion for ESX [1]	
4817M6X	VMware VirtualCenter VMotion (2 processors)
4817M7X	VMware VirtualCenter VMotion (4 processors)
4817M8X	VMware VirtualCenter VMotion (8 processors)
4817M9X	VMware VirtualCenter VMotion (16 processors)
4817MFX	VMware VMotion for 2 Processors w/3 Year Subscription
4817MGX	VMware VMotion for 2 Processors w/5 Year Subscription
Virtual Infrastructure Node for ESX [2]	
4817MAX	VMware Virtual Infrastructure Node (2 processors)
4817MA3	VMware Virtual Infrastructure Node (1-2 processors w/ 3 year software subscription)
4817MA5	VMware Virtual Infrastructure Node (1-2 processors w/ 5 year software subscription)
4817MBX	VMware Virtual Infrastructure Node (4 processors)
4817MB3	VMware Virtual Infrastructure Node (3-4 processors w/ 3 year software subscription)
4817MB5	VMware Virtual Infrastructure Node (3-4 processors w/ 5 year software subscription)
4817MCX	VMware Virtual Infrastructure Node (8 processors)
4817MC3	VMware Virtual Infrastructure Node (5-8 processors w/ 3 year software subscription)
4817MC5	VMware Virtual Infrastructure Node (5-8 processors w/ 5 year software subscription)
4817MDX	VMware Virtual Infrastructure Node (16 processors)
4817MD3	VMware Virtual Infrastructure Node (8-16 processors) w/ 3 year software subscription
4817MD5	VMware Virtual Infrastructure Node (8-16 processors) w/ 5 year software subscription

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Table 82. VMware VirtualCenter and Add-Ons for ESX and GSX (continued)

Option Number	Description
4817U4X	VMware Virtual Infrastructure Node for ESX Upgrade (2 to 4 Processors)
4817UAX	VMware Virtual Infrastructure Node for ESX Upgrade (2 to 4 Processors) w/3 Year Subscription
4817UGX	VMware Virtual Infrastructure Node for ESX Upgrade (2 to 4 Processors) w/5 Year Subscription
4817U5X	VMware Virtual Infrastructure Node for ESX Upgrade (4 to 8 Processors)
4817UBX	VMware Virtual Infrastructure Node for ESX Upgrade (4 to 8 Processors) w/3 Year Subscription
4817UHX	VMware Virtual Infrastructure Node for ESX Upgrade (4 to 8 Processors) w/5 Year Subscription
Virtual Infrastructure Node for GSX[3]	
4817L1X	Virtual Infrastructure Node for GSX Server 3 for Linux (2 Processors) w/1 Year Subscription
4817L2X	Virtual Infrastructure Node for GSX Server 3 for Linux (2 Processors) w/3 Year Subscription
4817L3X	Virtual Infrastructure Node for GSX Server 3 for Linux (2 Processors) w/5 Year Subscription
4817L4X	Virtual Infrastructure Node for GSX Server 3 for Linux (4 Processors) w/1 Year Subscription
4817L5X	Virtual Infrastructure Node for GSX Server 3 for Linux (4 Processors) w/3 Year Subscription
4817L6X	Virtual Infrastructure Node for GSX Server 3 for Linux (4 Processors) w/5 Year Subscription
4817L7X	Virtual Infrastructure Node for GSX Server 3 for Linux (8 Processors) w/1 Year Subscription
4817L8X	Virtual Infrastructure Node for GSX Server 3 for Linux (8 Processors) w/3 Year Subscription
4817L9X	Virtual Infrastructure Node for GSX Server 3 for Linux (8 Processors) w/5 Year Subscription
4817LAX	Virtual Infrastructure Node for GSX Server 3 for Linux (16 Processors) w/1 Year Subscription
4817LBX	Virtual Infrastructure Node for GSX Server 3 for Linux (16 Processors) w/3 Year Subscription
4817LCX	Virtual Infrastructure Node for GSX Server 3 for Linux (16 Processors) w/5 Year Subscription
4817LDX	Virtual Infrastructure Node for GSX Server 3 for Windows (2 Processors) w/1 Year Subscription
4817LEX	Virtual Infrastructure Node for GSX Server 3 for Windows (2 Processors) w/3 Year Subscription
4817LFX	Virtual Infrastructure Node for GSX Server 3 for Windows (2 Processors) w/5 Year Subscription
4817LGX	Virtual Infrastructure Node for GSX Server 3 for Windows (4 Processors) w/1 Year Subscription
4817LHX	Virtual Infrastructure Node for GSX Server 3 for Windows (4 Processors) w/3 Year Subscription
4817LJX	Virtual Infrastructure Node for GSX Server 3 for Windows (4 Processors) w/5 Year Subscription
4817LKX	Virtual Infrastructure Node for GSX Server 3 for Windows (8 Processors) w/1 Year Subscription
4817LLX	Virtual Infrastructure Node for GSX Server 3 for Windows (8 Processors) w/3 Year Subscription
4817LMX	Virtual Infrastructure Node for GSX Server 3 for Windows (8 Processors) w/5 Year Subscription
4817LNX	Virtual Infrastructure Node for GSX Server 3 for Windows (16 Processors) w/1 Year Subscription
4817LPX	Virtual Infrastructure Node for GSX Server 3 for Windows (16 Processors) w/3 Year Subscription
4817LQX	Virtual Infrastructure Node for GSX Server 3 for Windows (16 Processors) w/5 Year Subscription

Notes:
1. A VirtualCenter add-on that enables live servers to be moved from one virtual machine host to another.
2. A VirtualCenter bundle which includes licenses for VMware ESX Server, VMware Virtual SMP, the VMware VirtualCenter Management Agent, and VMware Vmotion.
3. A VirtualCenter bundle which includes licenses for VMware GSX Server and the VMware VirtualCenter Management Agent.

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Offers resource optimization, high availability and data protection that deliver capabilities not possible with physical machines. VMware Infrastructure 3 expands the processing and memory capacity of virtual machines so that intensive workloads can benefit from virtualization. VirtualCenter Management Server 2 can manage Virtual Infrastructures of hundreds of VMware servers and thousands of virtual machines. VMware Infrastructure 3 with VMware VirtualCenter Management Server 2 introduces the concept of VMware Clusters and new capabilities built on Clusters called VMware DRS and VMware HA.

Table 83. VMware Infrastructure 3 with VMware VirtualCenter Management Server 2

Option Number	Description
VMware Infrastructure 3 with VMware VirtualCenter Management Server 2	
4817V01	VMware Infrastructure 3 Starter for 2 sockets
4817S01	VMware Infrastructure 3 Starter for 2 sockets - 1 year Full Subscription
4817T01	VMware Infrastructure 3 Starter for 2 sockets - 3 year Full Subscription
4817U01	VMware Infrastructure 3 Starter for 2 sockets - 5 year Full Subscription
4817L01	VMware Infrastructure 3 Starter for 2 sockets - 1 year Limited Subscription
4817M01	VMware Infrastructure 3 Starter for 2 sockets - 3 year Limited Subscription
4817N01	VMware Infrastructure 3 Starter for 2 sockets - 5 year Limited Subscription
4817V02	VMware Infrastructure 3 Standard for 2 sockets
4817S02	VMware Infrastructure 3 Standard for 2 sockets - 1 year Full Subscription
4817T02	VMware Infrastructure 3 Standard for 2 sockets - 3 year Full Subscription
4817U02	VMware Infrastructure 3 Standard for 2 sockets - 5 year Full Subscription
4817L02	VMware Infrastructure 3 Standard for 2 sockets - 1 year Limited Subscription
4817M02	VMware Infrastructure 3 Standard for 2 sockets - 3 year Limited Subscription
4817N02	VMware Infrastructure 3 Standard for 2 sockets - 5 year Limited Subscription
4817V03	VMware Infrastructure 3 Enterprise for 2 sockets
4817S03	VMware Infrastructure 3 Enterprise for 2 sockets - 1 year Full Subscription
4817T03	VMware Infrastructure 3 Enterprise for 2 sockets - 3 year Full Subscription
4817U03	VMware Infrastructure 3 Enterprise for 2 sockets - 5 year Full Subscription
4817L03	VMware Infrastructure 3 Enterprise for 2 sockets - 1 year Limited Subscription
4817M03	VMware Infrastructure 3 Enterprise for 2 sockets - 3 year Limited Subscription
4817N03	VMware Infrastructure 3 Enterprise for 2 sockets - 5 year Limited Subscription
4817V04	VMware HA 2 for 2 sockets
4817S04	VMware HA 2 for 2 sockets - 1 year Full Subscription
4817T04	VMware HA 2 for 2 sockets - 3 year Full Subscription
4817U04	VMware HA 2 for 2 sockets - 5 year Full Subscription
4817L04	VMware HA 2 for 2 sockets - 1 year Limited Subscription
4817M04	VMware HA 2 for 2 sockets - 3 year Limited Subscription
4817N04	VMware HA 2 for 2 sockets - 5 year Limited Subscription
4817V05	VMware DRS 2 for 2 sockets
4817S05	VMware DRS 2 for 2 sockets - 1 year Full Subscription

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Table 83. VMware Infrastructure 3 with VMware VirtualCenter Management Server 2 (continued)

Option Number	Description
4817T05	VMware DRS 2 for 2 sockets - 3 year Full Subscription
4817U05	VMware DRS 2 for 2 sockets - 5 year Full Subscription
4817L05	VMware DRS 2 for 2 sockets - 1 year Limited Subscription
4817M05	VMware DRS 2 for 2 sockets - 3 year Limited Subscription
4817N05	VMware DRS 2 for 2 sockets - 5 year Limited Subscription
4817V06	VMware Consolidated Backup 3 for 2 sockets
4817S06	VMware Consolidated Backup 3 for 2 sockets - 1 year Full Subscription
4817T06	VMware Consolidated Backup 3 for 2 sockets - 3 year Full Subscription
4817U06	VMware Consolidated Backup 3 for 2 sockets - 5 year Full Subscription
4817L06	VMware Consolidated Backup 3 for 2 sockets - 1 year Limited Subscription
4817M06	VMware Consolidated Backup 3 for 2 sockets - 3 year Limited Subscription
4817N06	VMware Consolidated Backup 3 for 2 sockets - 5 year Limited Subscription
4817V24	VMware VirtualCenter Management Server 2 for VMware Infrastructure
4817S24	VMware VirtualCenter Management Server 2 - 1 year Full Subscription
4817T24	VMware VirtualCenter Management Server 2 - 3 year Full Subscription
4817U24	VMware VirtualCenter Management Server 2 - 5 year Full Subscription
4817L24	VMware VirtualCenter Management Server 2 - 1 year Limited Subscription
4817M24	VMware VirtualCenter Management Server 2 - 3 year Limited Subscription
4817N24	VMware VirtualCenter Management Server 2 - 5 year Limited Subscription
4817V25	VMware VMotion 2 for 2 Sockets
4817S25	VMware VMotion 2 for 2 Sockets - 1 year Full Subscription
4817T25	VMware Vmotion for 2 Sockets - 3 year Full Subscription
4817U25	VMware Vmotion 2 for 2 Sockets - 5 year Full Subscription
4817L25	VMware VMotion 2 for 2 Sockets - 1 year Limited Subscription
4817M25	Vmware VMotion 2 for 2 Sockets - 3 year Limited Subscription
4817N25	VMware VMotion 2 for 2 Sockets - 5 year Limited Subscription
4817V08	VMware Infrastructure 3 Starter to Standard Upgrade for 2 sockets
4817V09	VMware Infrastructure 3 Starter to Enterprise Upgrade for 2 sockets
4817V10	VMware Infrastructure 3 Standard to Enterprise Upgrade for 2 sockets
4817V28	VMware GSX Server 3 or GSX VIN to VMware Infrastructure 3 Starter Upgrade
4817V11	VMware ESX Server 2 to VMware Infrastructure 3 Standard Upgrade for 2 sockets - Expired Subscription
4817V12	VMware VMotion 1 to VMotion 2 Upgrade for 2 sockets - Expired Subscription
4817V13	VMware Virtual Infrastructure Node to VMware Infrastructure 3 Standard Plus VMotion 2 Upgrade for 2 sockets - Expired Subscription
4817V14	VMware Virtual Infrastructure Node to VMware Infrastructure 3 Enterprise Upgrade for 2 sockets - Expired Subscription
4817V15	VMware VirtualCenter Management Server 1 to VirtualCenter Management 2 Upgrade - Expired Subscription

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Table 83. VMware Infrastructure 3 with VMware VirtualCenter Management Server 2 (continued)

Option Number	Description
4817V18	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot Bundle including PSO VDI Pilot, 25 VMs, VirtualCenter Management Server up to 4 Sockets
4817S18	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot - 1 year Full Subscription
4817T18	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot - 3 year Full Subscription
4817U18	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot - 5 year Full Subscription
4817L18	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot - 1 year Limited Subscription
4817M18	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot - 3 year Limited Subscription
4817N18	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot - 5 year Limited Subscription
4817V19	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot Bundle including PSO VDI Pilot, 25 VMs, VirtualCenter Management Server up to 4 sockets
4817S19	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot - 1 year Full Subscription
4817T19	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot - 3 year Full Subscription
4817U19	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot - 5 year Full Subscription
4817L19	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot - 1 year Limited Subscription
4817M19	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot - 3 Year Limited Subscription
4817N19	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot - 5 year Limited Subscription
4817V22	VMware Virtual Desktop Infrastructure (VDI) 100 Standard VMs for up to 16 Sockets
4817S22	VMware Virtual Desktop Infrastructure (VDI) 100 Standard VMs for up to 16 Sockets - 1 year Full Subscription
4817T22	VMware Virtual Desktop Infrastructure (VDI) 100 Standard VMs for up to 16 Sockets - 3 year Full Subscription
4817U22	VMware Virtual Desktop Infrastructure (VDI) 100 Standard VMs for up to 16 Sockets - 5 year Full Subscription
4817L22	VMware Virtual Desktop Infrastructure (VDI) 100 Standard VMs for up to 16 Sockets - 1 year Limited Subscription
4817M22	VMware Virtual Desktop Infrastructure (VDI) 100 Standard VMs for up to 16 Sockets - 3 year Limited Subscription
4817N22	VMware Virtual Desktop Infrastructure (VDI) 100 Standard VMs for up to 16 Sockets - 5 year Limited Subscription
4817V23	VMware Virtual Desktop Infrastructure (VDI) 100 Enterprise VMs for up to 16 sockets
4817S23	VMware Virtual Desktop Infrastructure (VDI) 100 Enterprise VMs for up to 16 Sockets - 1 year Full Subscription
4817T23	VMware Virtual Desktop Infrastructure (VDI) 100 Enterprise VMs for up to 16 Sockets - 3 year Full Subscription
4817U23	VMware Virtual Desktop Infrastructure (VDI) 100 Enterprise VMs for up to 16 Sockets - 5 year Full Subscription
4817L23	VMware Virtual Desktop Infrastructure (VDI) 100 Enterprise VMs for up to 16 Sockets - 1 year Limited Subscription
4817M23	VMware Virtual Desktop Infrastructure (VDI) 100 Enterprise VMs for up to 16 Sockets - 3 year Limited Subscription
4817N23	VMware Virtual Desktop Infrastructure (VDI) 100 Enterprise VMs for up to 16 Sockets - 5 year Limited Subscription

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Table 83. VMware Infrastructure 3 with VMware VirtualCenter Management Server 2 (continued)

Option Number	Description
4817V20	VMware Virtual Desktop Infrastructure (VDI) Standard Pilot Bundle including 25 VMs, VirtualCenter Management Server up to 4 sockets
4817V21	VMware Virtual Desktop Infrastructure (VDI) Enterprise Pilot Bundle including 25 VMs, VirtualCenter Management Server up to 4 Sockets
4817V27	VMware Virtual Desktop Infrastructure (VDI) VMware PSO VDI Pilot
4817V16	VMware Infrastructure Media Kit
4817V30	VMware Infrastructure 3 Enterprise Blade Server License Pack for 16 Sockets
4817V31	VMware Infrastructure 3 Enterprise Blade Server License Pack for 20 Sockets
4817V32	VMware Infrastructure 3 Enterprise Blade Server License Pack for 28 Sockets

These BladeCenter license packs and media kits enable you to conveniently purchase VMware software and product media for a full BladeCenter chassis.

Table 84. VMware Offerings for BladeCenter

Option Number	Description
4817BEV	VMware Virtual Infrastructure Node license pack for BladeCenter (2 processors)1
4817B3X	VMware Virtual Infrastructure Node license pack for BladeCenter (2 processors) w/ 3 year subscription
4817B5X	VMware Virtual Infrastructure Node license pack for BladeCenter (2 processors) w/ 5 year subscription
4817BAX	VMware Virtual Infrastructure Node license pack for BladeCenter (4 processors) 2
4817BBX	VMware Virtual Infrastructure Node License Pack for BladeCenter (4 processors) w/ 3 year subscription
4817BCX	VMware Virtual Infrastructure Node License Pack for BladeCenter (4 processors) w/ 5 year subscription

Notes:
1. Contains licenses for Virtual Infrastructure Nodes for 14 two-way blades.
2. Contains licenses for Virtual Infrastructure Nodes for seven four-way blades.

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Virtual machine software ideal for x86-based server consolidation, disaster recovery, 2 and streamlining software development processes.

Table 85. VMWare GSX Server

Option Number	Description
4817G1X	VMware GSX Server 3 for Windows (1-2 processors)
4817G2X	VMware GSX Server 3 for Windows (Unlimited processors)
4817G3X	VMware GSX Server 3 for Linux (1-2 processors)
4817G4X	VMware GSX Server 3 for Linux (Unlimited processors)
4817G9X	VMware GSX Server 3 for Linux (2 Processors) w/3 Year Subscription
4817GAX	VMware GSX Server 3 for Linux (2 Processors) w/5 Year Subscription
4817GBX	VMware GSX Server 3 for Linux (Unlimited Processors) w/3 Year Subscription
4817GCX	VMware GSX Server 3 for Linux (Unlimited Processors) w/5Year Subscription
4817GDX	VMware GSX Server 3 for Windows (2 Processors) w/3 Year Subscription
4817GEX	VMware GSX Server 3 for Windows (2 Processors) w/5 Year Subscription
4817GFX	VMware GSX Server 3 for Windows (Unlimited Processors) w/3 Year Subscription
4817GGX	VMware GSX Server 3 for Windows (Unlimited Processors) w/5 Year Subscription
4817G7X	VMware GSX 3 Server Upgrade (2 to Unlimited Processors for Linux)
4817G8X	VMware GSX 3 Server Upgrade (2 to Unlimited Processors for Windows)

Media kits contain entitlement to a physical product CD and printed manual as an alternative to convenient downloads.

Table 86. VMWare Media Kits

Option Number	Description
481721X	VMware ESX Server Media Kit
4817MEX	VMware VirtualCenter Media Kit
4817G5X	VMware GSX Server 3 Media Kit (English)

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The following servers are compatible with VMware ESX Server 2.x, ESX 2.x upgrades, Virtual SMP and Virtual SMP Upgrades.

Table 87. Server Compatibility

Server
xSeries 255
xSeries 336
xSeries 346
xSeries 366
xSeries 445
xSeries 460
eServer 326
BladeCenter HS20
BladeCenter HS40
BladeCenter LS20

- IBM provides support for Windows, Linux and leading applications in a VMware environment.
- Differences in system configurations are invisible to operating systems and applications.
- Clustering environments can be supported within a single server.
- Provides a cost-effective failover solution for mixed OS environments.
- All options that are compatible with a supported system may not be supported by VMware.
- For the latest available information, refer to IBM's website for Option/NOS/Server compatibility. See the information Sources section for URL.

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Chapter 36. xSeries network operating system offerings

IBM Systems Group offers a range of Network Operating Systems (NOS) on xSeries servers and IntelliStation workstations. IBM NOS offerings are documented after testing to operate as reliable solutions, providing a simple, cost-effective start-up process. Some NOS offerings are available preloaded on the server. Other offerings must be installed by the customer.

The following chart shows which NOS preloads are available for each xSeries server and IntelliStation workstation.

Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
90P0222	Microsoft Windows Server 2003, Enterprise Edition (Preloaded)			X	X				X	X	X	X	X	X	X	X	X	X								
90P0221	Microsoft Windows Server 2003, Standard Edition (Preloaded)			X	X				X	X	X	X	X	X	X	X	X	X								
25K8456	Microsoft Windows Small Business Server 2003, Standard Edition (Preloaded)								X	X	X	X		X												
32R1022	MS Storage Server 2003 - Non Cluster - (1 Processor) Express w/HardwareRaid																									
32R1024	MS Storage Server 2003 - Non Cluster - (1-4 proc)										X[2]															

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
32R1025	MS Storage Server 2003 - Non Cluster - (1-4 proc)																X[2]									
32R1026	MS Storage Server 2003 - Non Cluster - (1-4 proc)			X[2]																						
59P2923	Windows XP Professional	X					X	X												X						
39Y5076	Windows XP Professional 64-bit	X						X																		
25K7969	Red Hat Enterprise Linux AS 3 Standard AMD64 with 1 yr Red Hat Support, preloaded															X	X									
25K7970	Red Hat Enterprise Linux AS 3 Standard AMD64 with 1 yr Red Hat Network, preloaded															X	X									
25K7971	Red Hat Enterprise Linux AS 3 Premium AMD64 with 1 yr Red Hat Support, preloaded															X	X									
32P9580	Red Hat Enterprise Linux AS 3 Standard AMD64 with 3 yr Red Hat Network, preloaded															X	X									

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
32R2744	Red Hat Enterprise Linux ES 3 AMD64/EM64T with 1 yr Red Hat Network, preloaded										X	X				X	X									
32R2746	Red Hat Enterprise Linux ES 3 AMD64/EM64T with 1 yr Red Hat Support, preloaded										X	X				X	X									
32R2748	Red Hat Enterprise Linux ES 3 AMD64/EM64T with 3 yr Red Hat Network, preloaded										X	X				X	X									
25K7976	Red Hat Enterprise Linux WS 3 Standard AMD64 with 1 yr Red Hat Support, preloaded	X												X		X	X									
25K7977	Red Hat Enterprise Linux WS 3 Standard AMD64 with 1 yr Red Hat Network, preloaded	X												X		X	X									
32P9579	Red Hat Enterprise Linux WS 3 Standard AMD64 with 3 yr Red Hat Network, preloaded																									

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
25K7966	Red Hat Enterprise Linux AS 3 Standard x86 with 1 yr Red Hat support, preloaded			X	X											X	X									
25K7967	Red Hat Enterprise Linux AS 3 Standard x86 with 1 yr Red Hat Network, preloaded			X	X											X	X									
25K7968	Red Hat Enterprise Linux AS 3 Premium x86 with 1 yr Red Hat support, preloaded			X	X											X	X									
32P9578	Red Hat Enterprise Linux AS 3 Standard x86 with 3 yr Red Hat Network, preloaded			X	X											X	X									
25K7972	Red Hat Enterprise Linux ES 3 Standard x86 with 1 yr Red Hat support, preloaded			X	X						X	X		X		X	X									
25K7973	Red Hat Enterprise Linux ES 3 Standard x86 with 1 yr Red Hat Network, preloaded			X	X						X	X		X		X	X									

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
32P9577	Red Hat Enterprise Linux ES 3 Standard x86 with 3 yr Red Hat Network, preloaded			X	X						X	X		X		X	X									
25K7974	Red Hat Enterprise Linux WS 3 Standard x86 with 1 yr Red Hat support, preloaded			X	X		X				X	X		X		X	X			X						
25K7975	Red Hat Enterprise Linux WS 3 Standard x86 with 1 yr Red Hat Network, preloaded			X	X		X				X	X		X		X	X			X						
32P9576	Red Hat Enterprise Linux WS 3 Standard x86 with 3 yr Red Hat Network, preloaded			X	X		X				X	X		X		X	X			X						
39Y5305	Red Hat Enterprise Linux AS 4 with 1 yr Standard Red Hat Support CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X						
39Y5306	Red Hat Enterprise Linux AS 4 with 1 yr Subscription (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X						
39Y5307	Red Hat Enterprise Linux AS 4 with 3 yr Subscription (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X						

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
39Y5308	Red Hat Enterprise Linux AS 4 with 1 yr Premium Red Hat Support (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
39Y5310	Red Hat Enterprise Linux ES 4 with 1 yr Standard Red Hat Support (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
39Y5312	Red Hat Enterprise Linux ES 4 with 1 yr Subscription (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
39Y5314	Red Hat Enterprise Linux ES 4 with 3 yr Subscription (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
39Y5316	Red Hat Enterprise Linux WS 4 with 1 yr Standard Red Hat Support (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
39Y5318	Red Hat Enterprise Linux WS 4 with 1 yr Subscription (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
39Y5320	Red Hat Enterprise Linux WS 4 with 3 yr Subscription (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
39R7021	Red Hat Enterprise Linux ES 4 with 1 yr Standard Red Hat Support (32-bit, preinstalled)								X	X					X											

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
39R7022	Red Hat Enterprise Linux ES 4 with 1 yr Subscription (32-bit, preinstalled)								X	X					X											
39R7028	Red Hat Enterprise Linux ES 4 with 3 yr Subscription (32-bit, preinstalled)								X	X					X											
39R7019	Red Hat Enterprise Linux WS 4 with 1 yr Standard Red Hat Support (32-bit, preinstalled)								X	X					X											
39R7020	Red Hat Enterprise Linux WS 4 with 1 yr Subscription (32-bit, preinstalled)								X	X					X											
39R7027	Red Hat Enterprise Linux WS 4 with 3 yr Subscription (32-bit, preinstalled)								X	X					X											
31R1434	SUSE Linux Enterprise Server 9 1-2 CPUs for 1 year (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
31R1435	SUSE Linux Enterprise Server 9 1-16 CPUs for 1 year (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
31R1436	SUSE Linux Enterprise Server 9 1-2 CPUs for 3 years (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
31R1437	SUSE Linux Enterprise Server 9 1-16 CPUs for 3 years (CD)[3]		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X							
40K1392	SUSE Linux Enterprise Server 9 for BladeCenter Chassis with 1 yr Subscription																				X	X	X	X		
40K1393	SUSE Linux Enterprise Server 9 for BladeCenter Chassis with 1 yr Subscription																				X	X	X	X		
25R3656	1 yr SUSE Linux Server 9/POWER < 1-2 CPU's/Sockets																								X	X
32R2638	SUSE Linux Enterprise Server 9 1 yr Support per Server																								X	X
32R2639	SUSE Linux Enterprise Server 9 3 yr Subscription 1-2 CPU/socket																								X	X
32R2640	SUSE Linux Enterprise Server 9 1 yr Subscription per 8 Cluster Nodes with Head Node																								X	X
32R2641	SUSE Linux Enterprise Server 9 3 yr Subscription per 8 Cluster Nodes with Head Node																								X	X

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
32R2642	SUSE Linux Enterprise Server 9 1 yr Subscription per additional 8 Cluster Nodes																								X	X
32R2643	SUSE Linux Enterprise Server 9 3 yr Subscription per additional 8 Cluster Nodes																								X	X
32R2638	SUSE Linux Enterprise Server 9 1 yr Support per Server																								X	X
40K1450	Red Hat Enterprise Linux 4 1 yr standard subscription																								X	X
32R2627	Red Hat Enterprise Linux 4 1 yr standard subscription and support, 1-2 CPU/sockets																								X	X
32R2629	Red Hat Enterprise Linux 4 3 yr standard subscription, 1-2 CPU/sockets																								X	X
32R2628	Red Hat Enterprise Linux 4 3 yr standard subscription and support, 1-2 CPU/sockets																								X	X

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Option Number	Network Operating System (NOS) Offerings[1]	A10	e326m	HS20	HS40	LS20	M30	M40	x100	x206m	x226	x236	x260	x306	x306m	x336	x346	x366	x460	Z20	8677	8720	8730	8852	8842	8844
40K1510	Red Hat Enterprise Linux 4 1 yr standard subscription, 8 Cluster Nodes																								X	X
40K1511	Red Hat Enterprise Linux 4 1 yr standard subscription, 8 Cluster Nodes																								X	X
25R3625	Red Hat Enterprise Linux 3 1 yr maintenance, 1-2 CPU/socket																								X	X
25R3626	Red Hat Enterprise Linux 3 1 yr maintenance standard, 1-8 CPU/socket																								X	X
25R3627	Red Hat Enterprise Linux 3 3 yr maintenance,1-2 CPU/socket																								X	X
32R2630	Red Hat Enterprise Linux 3 1 yr Standard Subscription for 8 Cluster Nodes																								X	X
32R2631	Red Hat Enterprise Linux 3 3 yr Standard Subscription for 8 Cluster Nodes																								X	X

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Notes:

1. Orderable only when configured with an xSeries server or IntelliStation workstation, not separately. Available in select countries. For more information, check with your local IBM representative.
2. Available on selected models.
3. Option is installed by the customer.

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Chapter 37. IBM and third party software applications

Check with your IBM representative to verify application software availability for your system. IBM makes no representations or warranties regarding third-party products or services. Some software may differ from its retail version (if available) and may not include user manuals or all program functionality. Software license agreements may apply.

Table 88. IBM Director

IBM Director	
Director is provided with all xSeries servers. Director Agent is provided with all xSeries, IntelliStations and NetVista systems. Features Include: • Basic hardware management including inventory, monitoring, alerting, group management, RAID manager and management processor. • Help Desk and Support including remote control, remote session, file transfer and real-time diagnostics. • Upward integration to Tivoli, CA, HP, MS, SMS, MOM, BMC or NetIQ.	
Director 5.10	
32R1223	Director 5.10 Server License + one year subscription
32R1224	Director 5.10 Agent License + one year subscription
32R1227	Director 5.10 CD Media Pack
Capacity Manager 5.10	
32R1225	Capacity Manager 5.10 + one year subscription
32R1230	Capacity Manager 5.10 Media Pack
Software Distribution Premium Edition 5.10	
32R1226	Software Distribution Premium Edition 5.10 License + one year subscription
32R1233	Software Distribution Premium Edition 5.10 Media Pack
Subscription Services	
25K8630	Director Server - 1 Year Subscription after License
25K8631	Director Server - 1 Year Subscription Renewal
25K8632	Director Server - 2 Year Subscription Renewal
25K8633	Director Agent - 1 Year Subscription after License
25K8634	Director Agent - 1 Year Subscription Renewal
25K8635	Director Agent - 2 Year Subscription Renewal
25K8639	Director SW Distribution Premium Edition - 1 Year Subscription after License
25K8640	Director SW Distribution Premium Edition - 1 Year Subscription Renewal
25K8641	Director SW Distribution Premium Edition - 2 Year Subscription Renewal

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Table 89. Application Workload Manager

Application Workload Manager for IBM Director	
Features Include: • Tools to manage contending server workloads. • Policy-based allocation, management, and control of system resources. • Distribution of resources at the user and application level. • Capture and store comprehensive application resource usage data for analysis.	
73P8603	Application Workload Manager for IBM Director - Media Pack, Single License Proof of Entitlement
73P8604	Application Workload Manager for IBM Director - Single License Proof of Entitlement
73P8605	Application Workload Manager for IBM Director - 20 License Proof of Entitlement
73P8606	Application Workload Manager for IBM Director - 50 License Proof of Entitlement
73P8607	Application Workload Manager for IBM Director - 100 License Proof of Entitlement

Table 90. IBM Usage and Accounting Manager 5.1

IBM Usage and Accounting Manager 5.1	
IBM Usage and Accounting Manager is a resource accounting product that enables you to track, manage, allocate and bill for IT resources. Features Include: • Usage-based accounting and charge back. • IT cost allocation and analysis. • Application allocation and availability. • Resource utilization and capacity reporting. • Easy reporting through Web interface. • IBM Usage and Accounting Manager V5.1 has collectors for the Windows, RedHat, SuSE Linux, and VMware platforms.	
Usage and Accounting Manager 5.1	
42C4657	IBM Usage and Accounting Manager 5.1 - System License + One Year Subscription
42C4658	IBM Usage and Accounting Manager 5.1 - Media Pack

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Table 91. Remote Deployment Manager

Remote Deployment Manager	
Features Include: • Remote replication of system installations • Remote unattended system deployment • Updating system and option firmware • Rapid image backup and restore technology	
Remote Deployment Manager v4.20	
4836MDX	Remote Deployment Manager v4.20 Media Package
4836ISX	Remote Deployment Manager v4.20 Single Managed IBM Server License with One One-Year Subscription
4836IWX	Remote Deployment Manager v4.20 Single Managed IBM Workstation License with One One-Year Subscription
4836NSX	Remote Deployment Manager v4.20 Single Managed non-IBM Server License with One One-Year Subscription
4836NWX	Remote Deployment Manager v4.20 Single Managed IBM non-IBM Workstation License with One One-Year Subscription
Subscription Services	
24R9416	Remote Deployment Manager Server - 1 Year Subscription after License
24R9417	Remote Deployment Manager Server - 1 Year Subscription Renewal
24R9418	Remote Deployment Manager Server - 2 Year Subscription Renewal
24R9419	Remote Deployment Manager Workstation - 1 Year Subscription after License
24R9420	Remote Deployment Manager Workstation - 1 Year Subscription Renewal
24R9421	Remote Deployment Manager Workstation - 2 Year Subscription Renewal

Table 92. Other IBM Software

UpdateXpress	
24R9422	UpdateXpress - 1 Year Subscription
24R9423	UpdateXpress - 2 Year Subscription
ServerGuide	
24R9424	ServerGuide - 1 Year Subscription
24R9425	ServerGuide - 2 Year Subscription

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Table 93. Altiris Deployment Solution

Altiris Deployment Solution for Servers	
Features Include: • Comprehensive server deployment for both Windows and Linux environments, including configuration of BIOS, RAID, and other components. • Full system imaging and scripted operating system installations of Windows and Linux. • Web console that lets you install local or remote deployment servers and manage them from a central location. • Remote installation of applications, hotfixes, and service packs as part of server build process. • Support for BladeCenter, which includes the ability to recognize bay in the blade chassis for rip and replace function.	
4819L1X	Altiris Deployment Solution for Servers
4819U1X	Altiris Deployment Solution for Servers Annual Upgrade Protection
4819S1X	Altiris Support Incident Pack - 5 Incidents - Americas
4819S2X	Altiris On-site Support - Standard Work Day - Americas
4819S4X	Altiris On-Site Support - Weekends & After Hours - Americas
4819S5X	Altiris Annual Premium Global Support - Americas
4819S6X	Altiris Annual Premium Support - Americas
4819S7X	Altiris Annual Premium 20 Support - Americas
4819S8X	Altiris Assigned Engineer - 25% for 12 Months - Americas
4819T1X	Altiris Support Incident Pack - 5 Incidents - EMEA
4819T2X	Altiris On-Site Support - Standard Work Day - EMEA
4819T4X	Altiris On-Site Support - Weekends & After Hours - EMEA
4819T5X	Altiris Annual Premium Global Support - EMEA
4819T6X	Altiris Annual Premium Support - EMEA
4819T7X	Altiris Annual Premium 20 Support - EMEA
4819T8X	Altiris Assigned Engineer - 25% for 12 Months - EMEA
4819R1X	Altiris Support Incident Pack - 5 Incidents - AP
4819R6X	Altiris Annual Premium Support - AP
4819R7X	Altiris Annual Premium 20 Support - AP
4819B1X	Altiris Deployment Solution for BladeCenter Chassis License
4819S9X	Altiris Annual Premium Global Support - Americas
4819SBX	Altiris Annual Premium 50 Support – Americas
4819SCX	Altiris Annual Premium 25 Support – Americas
4819T9X	Altiris Annual Premium Global Support – EMEA
4819TBX	Altiris Annual Premium 50 Support – EMEA
4819TCX	Altiris Annual Premium 25 Support - EMEA
4819RBX	Altiris Annual Premium 50 Support - AP
4819RCX	Altiris Annual Premium 25 Support - AP

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Table 94. SteelEye LifeKeeper High Availability Clustering Software

SteelEye LifeKeeper HA Clustering Software	
Features Include: • Enterprise-grade integrated clustering and data replication offering. • Application-centric monitoring and recovery. • Data replication -- Supports synchronous or asynchronous. • Data and application protection.	
24R9459	LifeKeeper for mySAP/MAX DB Solution on Linux
24R9460	LifeKeeper for mySAP/DB2 Solution on Linux
24R9461	LifeKeeper for Sendmail SAMS Solution on Linux
24R9463	LifeKeeper for Linux
39Y5163	LifeKeeper for LAMP Solution
39Y5164	LifeKeeper for Linux Documentation CD
39Y5165	LifeKeeper for Linux on Power
39Y5166	LifeKeeper for Linux with Data Replication
39Y5167	DRBD Application Recovery Kit for Linux
39Y5168	Rational ClearCase Application Recovery Kit for Linux
39Y5169	SAP DB/MaxDB Application Recovery Kit for Linux
39Y5170	Software RAID (md) Application Recovery Kit for Linux
39Y5171	LifeKeeper Extender for Linux
24R9464	LifeKeeper Data Replication for Linux
24R9466	Apache Web Server Module (includes SSL support)
24R9467	Sendmail Module (Open Source Sendmail)
24R9468	Informix(TM) Module
24R9469	Oracle Module
24R9470	DB2 WE, EE, EEE, ESE Module
24R9471	MySQL Module
24R9472	PostgreSQL Module
24R9473	Sybase Module
24R9474	NFS Server Module
24R9476	Samba Module
24R9477	Network Attached Storage Recovery Kit
24R9478	Logical Volume Manager Module
39Y5172	LifeKeeper for BladeCenter Servers (8 servers)
39Y5173	LifeKeeper for BladeCenter Servers (14 servers)
24R9483	LifeKeeper Data Replication for Windows
39Y5174	LifeKeeper Protection Suite for Windows
39Y5175	LifeKeeper for Windows Documentation CD
39Y5176	LifeKeeper Disk to Disk Backup for Windows

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Table 94. SteelEye LifeKeeper High Availability Clustering Software (continued)

SteelEye LifeKeeper HA Clustering Software	
39Y5177	LifeKeeper Extender for Windows
24R9484	MS IIS 5.0 Web Server Module
24R9485	SQL Server Module
24R9486	DB2 WE, EE, EEE, ESE Module
24R9487	Oracle 8i & 9i Module
24R9488	SteelEye Support Package 1
24R9489	SteelEye Support Package 2
24R9490	SteelEye Support Package 3
24R9491	SteelEye Support Package 4
24R9492	SteelEye Support Package 5
39Y5178	SteelEye Support Package 6
39Y5179	SteelEye Support Package 7

Table 95. ARMTech Active Resource Management

VERITAS Cluster Server and Storage Foundation Solutions	
Features Include: • Policy-based allocation, management, and control of system resources. • Distribution of resources at the user and application level. • Capture and store comprehensive application resource usage data for analysis. • Resource management information for more efficient server consolidation.	
32R2645	ARMTech Active Resource Management v2.x for Windows - 1 CPU License POE
32R2646	ARMTech Active Resource Management v2.x for Windows - 2 CPU License POE
32R2647	ARMTech Active Resource Management v2.x for Windows - 4 CPU License POE
32R2648	ARMTech Active Resource Management v2.x for Windows - 8 CPU License POE
32R2649	ARMTech 2.x Active Resource Management for Citrix MetaFrame - 1 CPU License POE
32R2650	ARMTech 2.x Active Resource Management for Citrix MetaFrame - 2 CPU License POE
32R2651	ARMTech 2.x Active Resource Management for Citrix MetaFrame - 4 CPU License POE
32R2652	ARMTech for Windows, per CPU - Standard Support
32R2653	ARMTech for Windows, per CPU - Premium Support
32R2654	ARMTech for Citrix MetaFrame, per CPU - Standard Support
32R2655	ARMTech for Citrix MetaFrame, per CPU – Premium Support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions

ARMTech 2.x Active Resource Management for Windows	
VERITAS Cluster Server and Storage Foundation products are offered on IBM eServer xSeries and BladeCenter servers running Microsoft Windows and Linux. VERITAS Cluster Server (VCS) offers the following benefits: • Protects critical applications and databases against downtime. • Monitors health and performance of the resource. • Restarts the resource on another available server. • Supports a wide range of heterogeneous hardware configurations. VERITAS Storage Foundation offers the following benefits: • Provides a complete solution for storage management. • Groups physical disks into logical volumes to potentially improve disk utilization and help eliminate storage-related downtime. • Spreads I/O across multiple paths to improve performance. • Moves unimportant or obsolete files to inexpensive storage. • Mirrors data for redundancy and moves data from failing disks to healthy disks.	
VERITAS Cluster Server and Storage Foundation Solutions for Windows	
4812M4X	Application Agent for Microsoft Exchange, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812C4X	Application Agent for Microsoft Exchange, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812F4X	Application Agent for Microsoft Exchange, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812M5X	Application Agent for Microsoft Exchange, Windows, Datacenter, v4.3, License, with no support
4812C5X	Application Agent for Microsoft Exchange, Windows, Datacenter, v4.3, License, with basic support
4812F5X	Application Agent for Microsoft Exchange, Windows, Datacenter, v4.3, License, with extended support
4812M6X	Application Agent for Microsoft Exchange, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812C6X	Application Agent for Microsoft Exchange, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812F6X	Application Agent for Microsoft Exchange, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812M7X	Cluster Option for Microsoft Cluster Server (MSCS), Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812C7X	Cluster Option for Microsoft Cluster Server (MSCS), Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812F7X	Cluster Option for Microsoft Cluster Server (MSCS), Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812M8X	Cluster Option for Microsoft Cluster Server (MSCS), Windows, Datacenter, v4.3, License, with no support
4812C8X	Cluster Option for Microsoft Cluster Server (MSCS), Windows, Datacenter, v4.3, License, with basic support
4812F8X	Cluster Option for Microsoft Cluster Server (MSCS), Windows, Datacenter, v4.3, License, with extended support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812M9X	Cluster Server for NetApp SnapMirror, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812C9X	Cluster Server for NetApp SnapMirror, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812F9X	Cluster Server for NetApp SnapMirror, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MAX	Cluster Server for NetApp SnapMirror, Windows, Datacenter, v4.3, License, with no support
4812CAX	Cluster Server for NetApp SnapMirror, Windows, Datacenter, v4.3, License, with basic support
4812FAX	Cluster Server for NetApp SnapMirror, Windows, Datacenter, v4.3, License, with extended support
4812MBX	Cluster Server for NetApp SnapMirror, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CBX	Cluster Server for NetApp SnapMirror, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FBX	Cluster Server for NetApp SnapMirror, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MCX	Database Agent for Microsoft SQL, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CCX	Database Agent for Microsoft SQL, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812FCX	Database Agent for Microsoft SQL, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MDX	Database Agent for Microsoft SQL, Windows, Datacenter, v4.3, License, with no support
4812CDX	Database Agent for Microsoft SQL, Windows, Datacenter, v4.3, License, with basic support
4812FDX	Database Agent for Microsoft SQL, Windows, Datacenter, v4.3, License, with extended support
4812MEX	Database Agent for Microsoft SQL, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CEX	Database Agent for Microsoft SQL, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FEX	Database Agent for Microsoft SQL, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MFX	Database Agent for Oracle, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CFX	Database Agent for Oracle, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812FFX	Database Agent for Oracle, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MGX	Database Agent for Oracle, Windows, Datacenter, v4.3, License, with no support
4812CGX	Database Agent for Oracle, Windows, Datacenter, v4.3, License, with basic support
4812FGX	Database Agent for Oracle, Windows, Datacenter, v4.3, License, with extended support
4812MHX	Database Agent for Oracle, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CHX	Database Agent for Oracle, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FHX	Database Agent for Oracle, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MJX	Dynamic Multipathing (DMP) Option, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CJX	Dynamic Multipathing (DMP) Option, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812FJX	Dynamic Multipathing (DMP) Option, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MKX	Dynamic Multipathing (DMP) Option, Windows, Datacenter, v4.3, License, with no support
4812CKX	Dynamic Multipathing (DMP) Option, Windows, Datacenter, v4.3, License, with basic support
4812FKX	Dynamic Multipathing (DMP) Option, Windows, Datacenter, v4.3, License, with extended support
4812MLX	Dynamic Multipathing (DMP) Option, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CLX	Dynamic Multipathing (DMP) Option, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FLX	Dynamic Multipathing (DMP) Option, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MMX	Enterprise Option, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CMX	Enterprise Option, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812FMX	Enterprise Option, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MNX	Enterprise Option, Windows, Datacenter Edition, v4.3, License, with no support
4812CNX	Enterprise Option, Windows, Datacenter Edition, v4.3, License, with basic support
4812FNX	Enterprise Option, Windows, Datacenter Edition, v4.3, License, with extended support
4812MPX	Enterprise Option, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CPX	Enterprise Option, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FPX	Enterprise Option, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MQX	FlashSnap Option, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CQX	FlashSnap Option, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812FQX	FlashSnap Option, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MRX	FlashSnap Option, Windows, Datacenter, v4.3, License, with no support
4812CRX	FlashSnap Option, Windows, Datacenter, v4.3, License, with basic support
4812FRX	FlashSnap Option, Windows, Datacenter, v4.3, License, with extended support
4812MSX	FlashSnap Option, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CSX	FlashSnap Option, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FSX	FlashSnap Option, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MTX	Global Cluster Option, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CTX	Global Cluster Option, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812FTX	Global Cluster Option, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MUX	Global Cluster Option, Windows, Datacenter, v4.3, License, with no support
4812CUX	Global Cluster Option, Windows, Datacenter, v4.3, License, with basic support
4812FUX	Global Cluster Option, Windows, Datacenter, v4.3, License, with extended support
4812MVX	Global Cluster Option, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CVX	Global Cluster Option, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FVX	Global Cluster Option, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MWX	HA Enterprise Option, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CWX	HA Enterprise Option, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812FWX	HA Enterprise Option, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812MXX	HA Enterprise Option, Windows, Datacenter Edition, v4.3, License, with no support
4812CXX	HA Enterprise Option, Windows, Datacenter Edition, v4.3, License, with basic support
4812FXX	HA Enterprise Option, Windows, Datacenter Edition, v4.3, License, with extended support
4812MYX	HA Enterprise Option, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812CYX	HA Enterprise Option, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812FYX	HA Enterprise Option, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812MZX	Hardware Replication Agent for EMC SRDF, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812CZX	Hardware Replication Agent for EMC SRDF, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812FZX	Hardware Replication Agent for EMC SRDF, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812N1X	Hardware Replication Agent for EMC SRDF, Windows, Datacenter, v4.3, License, with no support
4812D1X	Hardware Replication Agent for EMC SRDF, Windows, Datacenter, v4.3, License, with basic support
4812G1X	Hardware Replication Agent for EMC SRDF, Windows, Datacenter, v4.3, License, with extended support
4812N2X	Hardware Replication Agent for EMC SRDF, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812D2X	Hardware Replication Agent for EMC SRDF, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812G2X	Hardware Replication Agent for EMC SRDF, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812N3X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812D3X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812G3X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812N4X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Datacenter, v4.3, License, with no support
4812D4X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Datacenter, v4.3, License, with basic support
4812G4X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Datacenter, v4.3, License, with extended support
4812N5X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812D5X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812G5X	Hardware Replication Agent for Hitachi TrueCopy, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812N6X	Hardware Replication Agent for IBM PPRC, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812D6X	Hardware Replication Agent for IBM PPRC, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812G6X	Hardware Replication Agent for IBM PPRC, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812N7X	Hardware Replication Agent for IBM PPRC, Windows, Datacenter, v4.3, License, with no support
4812D7X	Hardware Replication Agent for IBM PPRC, Windows, Datacenter, v4.3, License, with basic support
4812G7X	Hardware Replication Agent for IBM PPRC, Windows, Datacenter, v4.3, License, with extended support
4812N8X	Hardware Replication Agent for IBM PPRC, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812D8X	Hardware Replication Agent for IBM PPRC, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812G8X	Hardware Replication Agent for IBM PPRC, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812NFX	Storage Foundation Enterprise, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812DFX	Storage Foundation Enterprise, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812GFX	Storage Foundation Enterprise, Windows, Advanced/Enterprise with extended support
4812NGX	Storage Foundation Enterprise, Windows, Datacenter Edition, v4.3, License, with no support
4812DGX	Storage Foundation Enterprise, Windows, Datacenter Edition, v4.3, License, with basic support
4812GGX	Storage Foundation Enterprise, Windows, Datacenter Edition, v4.3, License, with extended support
4812NHX	Storage Foundation Enterprise, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812DHX	Storage Foundation Enterprise, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812GHX	Storage Foundation Enterprise, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812NJX	Storage Foundation HA Enterprise, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812DJX	Storage Foundation HA Enterprise, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812GJX	Storage Foundation HA Enterprise, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812NKX	Storage Foundation HA Enterprise, Windows, Datacenter Edition, v4.3, License, with no support
4812DKX	Storage Foundation HA Enterprise, Windows, Datacenter Edition, v4.3, License, with basic support
4812GKX	Storage Foundation HA Enterprise, Windows, Datacenter Edition, v4.3,License, with extended support
4812NLX	Storage Foundation HA Enterprise, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812DLX	Storage Foundation HA Enterprise, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812GLX	Storage Foundation HA Enterprise, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812NMX	Storage Foundation HA, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812DMX	Storage Foundation HA, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812GMX	Storage Foundation HA, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812NNX	Storage Foundation HA, Windows, Datacenter, v4.3, License, with no support
4812DNX	Storage Foundation HA, Windows, Datacenter, v4.3, License, with basic support
4812GNX	Storage Foundation HA, Windows, Datacenter,v4.3, License, with extended support
4812NPX	Storage Foundation HA, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812DPX	Storage Foundation HA, Windows, Server/Standard/Web Edition, v4.3, License, with basic support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812GPX	Storage Foundation HA, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812NQX	Storage Foundation, Windows, Advanced/Enterprise Edition, v4.3, License, with no support
4812DQX	Storage Foundation, Windows, Advanced/Enterprise Edition, v4.3, License, with basic support
4812GQX	Storage Foundation, Windows, Advanced/Enterprise Edition, v4.3, License, with extended support
4812NRX	Storage Foundation, Windows, Datacenter, v4.3, License, with no support
4812DRX	Storage Foundation, Windows, Datacenter, v4.3, License, with basic support
4812GRX	Storage Foundation, Windows, Datacenter, v4.3, License, with extended support
4812NSX	Storage Foundation, Windows, Server/Standard/Web Edition, v4.3, License, with no support
4812DSX	Storage Foundation, Windows, Server/Standard/Web Edition, v4.3, License, with basic support
4812GSX	Storage Foundation, Windows, Server/Standard/Web Edition, v4.3, License, with extended support
4812NXX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Datacenter, v4.3, License, No Support
4812NYX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Server/Standard/Web Edition, v4.3, License, No Support
4812NZX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Advanced/Enterprise Edition, v4.3, License, No Support
4812P1X	Storage Foundation DR, Windows, Server/Standard/Web Edition, v4.3, License, No Support
4812P2X	Storage Foundation DR, Windows, Advanced/Enterprise Edition, v4.3, License, No Support
4812P3X	Storage Foundation DR, Windows, Datacenter Edition, v4.3, License, No Support
4812DXX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Datacenter, v4.3, License, Basic Support
4812DYX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Server/Standard/Web Edition, v4.3, License, Basic Support
4812DZX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Advanced/Enterprise Edition, v4.3,License, Basic Support
4812Q1X	Storage Foundation DR, Windows, Server/Standard/Web Edition, v4.3, License, Basic Support
4812Q2X	Storage Foundation DR, Windows, Advanced/Enterprise Edition, v4.3, License, Basic Support
4812Q3X	Storage Foundation DR, Windows, Datacenter Edition, v4.3, License, Basic Support
4812GXX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Datacenter, v4.3, License, Extended Support
4812GYX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Server/Standard/Web Edition, v4.3, License, Extended Support
4812GZX	Cluster Server Enterprise Agent for EMC MirrorView, Windows, Advanced/Enterprise Edition, v4.3, License, Extended Support
4812H1X	Storage Foundation DR, Windows, Server/Standard/Web Edition, v4.3, License, Extended Support
4812H2X	Storage Foundation DR, Windows, Advanced/Enterprise Edition, v4.3, License, Extended Support
4812H3X	Storage Foundation DR, Windows, Datacenter Edition, v4.3, License, Extended Support
VERITAS Cluster Server and Storage Foundation Solutions for Linux	
4812L1X	Cluster Server, Linux, Per CPU, v4.1, License, with no support
4812B1X	Cluster Server, Linux, Per CPU, v4.1, License, with basic support
4812E1X	Cluster Server, Linux, Per CPU, v4.1, License, with extended support
4812L2X	Cluster Server, Global Cluster Option, Linux, Per CPU, v4.1, License, with no support
4812B2X	Cluster Server, Global Cluster Option, Linux, Per CPU, v4.1, License, with basic support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812E2X	Cluster Server, Global Cluster Option, Linux, Per CPU, v4.1, License, with extended support
4812L3X	Cluster Server, Oracle Agent, Linux, Per CPU, v4.1, License, with no support
4812B3X	Cluster Server, Oracle Agent, Linux, Per CPU, v4.1, License, with basic support
4812E3X	Cluster Server, Oracle Agent, Linux, Per CPU, v4.1, License, with extended support
4812L4X	Cluster Server, DB2 Agent, Linux, Per CPU, v4.1, License, with no support
4812B4X	Cluster Server, DB2 Agent, Linux, Per CPU, v4.1, License, with basic support
4812E4X	Cluster Server, DB2 Agent, Linux, Per CPU, v4.1, License, with extended support
4812L5X	Storage Foundation Standard HA, Linux, Per CPU, v4.1, License, with no support
4812B5X	Storage Foundation Standard HA, Linux, Per CPU, v4.1, License, with basic support
4812E5X	Storage Foundation Standard HA, Linux, Per CPU, v4.1, License, with extended support
4812L6X	Storage Foundation Enterprise HA, Linux, Per CPU, v4.1, License, with no support
4812B6X	Storage Foundation Enterprise HA, Linux, Per CPU, v4.1, License, with basic support
4812E6X	Storage Foundation Enterprise HA, Linux, Per CPU, v4.1, License, with extended support
4812L7X	Storage Foundation Enterprise HA for DB2, Linux, Per CPU, v4.1, License, with no support
4812B7X	Storage Foundation Enterprise HA for DB2, Linux, Per CPU, v4.1, License, with basic support
4812E7X	Storage Foundation Enterprise HA for DB2, Linux, Per CPU, v4.1, License, with extended support
4812L8X	Storage Foundation Standard for DB2, Linux, Per CPU, v4.1, License, with no support
4812B8X	Storage Foundation Standard for DB2, Linux, Per CPU, v4.1, License, with basic support
4812E8X	Storage Foundation Standard for DB2, Linux, Per CPU, v4.1, License, with extended support
4812L9X	Storage Foundation Enterprise for DB2, Linux, Per CPU, v4.1, License, with no support
4812B9X	Storage Foundation Enterprise for DB2, Linux, Per CPU, v4.1, License, with basic support
4812E9X	Storage Foundation Enterprise for DB2, Linux, Per CPU, v4.1, License, with extended support
4812LAX	Storage Foundation Enterprise for Oracle RAC, Linux, Per CPU, v4.1, License, with no support
4812BAX	Storage Foundation Enterprise for Oracle RAC, Linux, Per CPU, v4.1, License, with basic support
4812EAX	Storage Foundation Enterprise for Oracle RAC, Linux, Per CPU, v4.1, License, with extended support
4812LBX	Storage Foundation Quickstart, Linux, v4.1, License, with no support
4812BBX	Storage Foundation Quickstart, Linux, v4.1, License, with basic support
4812EBX	Storage Foundation Quickstart, Linux, v4.1, License, with extended support
4812LCX	Storage Foundation Standard, Linux, Per CPU, v4.1, License, with no support
4812BCX	Storage Foundation Standard, Linux, Per CPU, v4.1, License, with basic support
4812ECX	Storage Foundation Standard, Linux, Per CPU, v4.1, License, with extended support
4812LDX	Storage Foundation Enterprise, Linux, Per CPU, v4.1, License, with no support
4812BDX	Storage Foundation Enterprise, Linux, Per CPU, v4.1, License, with basic support
4812EDX	Storage Foundation Enterprise, Linux, Per CPU, v4.1, License, with extended support
4812LEX	Storage Foundation Cluster File System Enterprise, Linux, Per CPU, v4.1, License, with no support
4812BEX	Storage Foundation Cluster File System Enterprise, Linux, Per CPU, v4.1, License, with basic support
4812EEX	Storage Foundation Cluster File System Enterprise, Linux, Per CPU, v4.1, License, with extended support
4812LFX	Storage Foundation Cluster File System Enterprise HA, Linux, Per CPU, v4.1, License, with no support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812BFX	Storage Foundation Cluster File System Enterprise HA, Linux, Per CPU, v4.1, License, with basic support
4812EFX	Storage Foundation Cluster File System Enterprise HA, Linux, Per CPU, v4.1, License, with extended support
4812LGX	Cluster Server, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BGX	Cluster Server, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EGX	Cluster Server, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LHX	Cluster Server Oracle Agent, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BHX	Cluster Server Oracle Agent, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EHX	Cluster Server Oracle Agent, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LJX	Cluster Server DB2 Agent, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BJX	Cluster Server DB2 Agent, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EJX	Cluster Server DB2 Agent, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LKX	Cluster Server, Global Cluster Option, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BKX	Cluster Server, Global Cluster Option, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EKX	Cluster Server, Global Cluster Option, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LLX	Cluster Server, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, VMware ESX 2.01 and 2.1, Per CPU, v2.2, License, with no support
4812BLX	Cluster Server, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, Vmware ESX 2.01 and 2.1, Per CPU, v2.2, License, with basic support
4812ELX	Cluster Server, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, VMware ESX 2.01 and 2.1, Per CPU, v2.2, License, with extended support
4812LMX	Cluster Server, Linux, Oracle 9i Agent, Per CPU, v2.0, License, with no support
4812BMX	Cluster Server, Linux, Oracle 9i Agent, Per CPU, v2.0, License, with basic support
4812EMX	Cluster Server, Linux, Oracle 9i Agent, Per CPU, v2.0, License, with extended support
4812LNX	Cluster Server, Linux, DB2 Agent, Per CPU, v2.0, License, with no support
4812BNX	Cluster Server, Linux, DB2 Agent, Per CPU, v2.0, License, with basic support
4812ENX	Cluster Server, Linux, DB2 Agent, Per CPU, v2.0, License, with extended support
4812LPX	Cluster Server, Linux, WebSphere Application Server, per CPU, v4.0, License, with no support
4812BPX	Cluster Server, Linux, WebSphere Application Server, per CPU, v4.0, License, with basic support
4812EPX	Cluster Server, Linux, WebSphere Application Server, per CPU, v4.0, License, with extended support
4812LQX	Cluster Server, Linux, Tuxedo Agent, Per CPU, v4.0, License, with no support
4812BQX	Cluster Server, Linux, Tuxedo Agent, Per CPU, v4.0, License, with basic support
4812EQX	Cluster Server, Linux, Tuxedo Agent, Per CPU, v4.0, License, with extended support
4812LRX	Cluster Server, Linux, WebLogic Server Agent, Per CPU, v4.0, License, with no support
4812BRX	Cluster Server, Linux, WebLogic Server Agent, Per CPU, v4.0, License, with basic support
4812ERX	Cluster Server, Linux, WebLogic Server Agent, Per CPU, v4.0, License, with extended support
4812LSX	Cluster Server, Linux, Apache HTTP, Per CPU, v4.0, License, with no support
4812BSX	Cluster Server, Linux, Apache HTTP, Per CPU, v4.0, License, with basic support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812ESX	Cluster Server, Linux, Apache HTTP, Per CPU, v4.0, License, with extended support
4812LTX	Storage Foundation Enterprise for Oracle RAC, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BTX	Storage Foundation Enterprise for Oracle RAC, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812ETX	Storage Foundation Enterprise for Oracle RAC, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LUX	Storage Foundation Quickstart, Linux, Red Hat EL 3.0 (IA-32), v4.0, License, with no support
4812BUX	Storage Foundation Quickstart, Linux, Red Hat EL 3.0 (IA-32), v4.0, License, with basic support
4812EUX	Storage Foundation Quickstart, Linux, Red Hat EL 3.0 (IA-32), v4.0, License, with extended support
4812LVX	Storage Foundation Standard, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BVX	Storage Foundation Standard, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EVX	Storage Foundation Standard, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LWX	Storage Foundation Enterprise, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BWX	Storage Foundation Enterprise, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EWX	Storage Foundation Enterprise, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LXX	Storage Foundation Enterprise HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BXX	Storage Foundation Enterprise HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EXX	Storage Foundation Enterprise HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LYX	Storage Foundation Standard HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812BYX	Storage Foundation Standard HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812EYX	Storage Foundation Standard HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812LZX	Foundation Suite, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, Per CPU, v2.2, License, with no support
4812BZX	Foundation Suite, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, Per CPU, v2.2, License, with basic support
4812EZX	Foundation Suite, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, Per CPU, v2.2, License, with extended support
4812M1X	Foundation Suite HA, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, Per CPU, v2.2, License, with no support
4812C1X	Foundation Suite HA, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, Per CPU, v2.2, License, with basic support
4812F1X	Foundation Suite HA, Linux, Red Hat AS 2.1, Red Hat EL 3.0 (IA-64), SUSE SLES8, Per CPU, v2.2, License, with extended support
4812M2X	Storage Foundation Cluster File System Enterprise, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812C2X	Storage Foundation Cluster File System Enterprise, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support

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Table 96. VERITAS Cluster Server and Storage Foundation Solutions (continued)

4812F2X	Storage Foundation Cluster File System Enterprise, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812M3X	Storage Foundation Cluster File System Enterprise HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with no support
4812C3X	Storage Foundation Cluster File System Enterprise HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with basic support
4812F3X	Storage Foundation Cluster File System Enterprise HA, Linux, Red Hat EL 3.0 (IA-32), Per CPU, v4.0, License, with extended support
4812NTX	Volume Replicator Enterprise (Includes Storage Foundation Enterprise), Linux, per CPU, v4.1, License, No Support
4812NVX	Volume Replicator Enterprise (Includes Storage Foundation Enterprise), Linux, per CPU, v4.1, License, No Support
4812NWX	Volume Replicator Enterprise (Includes Storage Foundation Enterprise), Linux, Red Hat EL 3.0 (IA-32), per CPU, v4.0, License, No Support
4812DTX	Storage Foundation HA for Oracle Standalone, Linux, per CPU, v4.1, License, Basic Support
4812DVX	Volume Replicator Enterprise (Includes Storage Foundation Enterprise), Linux, per CPU, v4.1, License, Basic Support
4812DWX	Volume Replicator Enterprise (Includes Storage Foundation Enterprise), Linux, Red Hat EL 3.0 (IA-32), per CPU, v4.0, License, Basic Support
4812GTX	Storage Foundation HA for Oracle Standalone, Linux, per CPU, v4.1, License, Extended Support
4812GVX	Volume Replicator Enterprise (Includes Storage Foundation Enterprise), Linux, per CPU, v4.1, License, Extended Support
4812GWX	Volume Replicator Enterprise (Includes Storage Foundation Enterprise), Linux, Red Hat EL 3.0 (IA-32), per CPU, v4.0, License, Extended Support

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Chapter 38. EXP400 storage expansion unit

Table 97. EXP400 Storage Expansion Unit At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (Std/Max) - Size
EXP400[1]	1733-1RU	Ultra320 LVDS	14/14	Y	4,200.0	445mm x 552mm x 128mm (17.5in x 21.7in x 5in)	Rack Drawer (3U)	38kg (85lbs)	2/2 - 500w
EXP400 (DC)[2]	1733-2RX	Ultra320 LVDS	14/14	Y	4,200.0	445mm x 552mm x 128mm (17.5in x 21.7in x 5in)	Rack Drawer (3U)	38kg (85lbs)	2/2 - 500w
Note: To determine cabling requirements, refer to the host systems Standard Cabling section and/or the I/O Option Attributes section for external connection information.									

Notes:
1. Includes a single 2m Ultra2 SCSI cable and dual hot-swap 500w redundant power supplies, two line cords and two rack power cables.
2. DC power model requiring -48v power source. Includes a single 2m Ultra2 SCSI cable and two rack power cables.

Table 98. Additional Features

	1733-1RU
ESMs (std/max)	1/2[1]
SCSI Ports (std/max)	1/2

Notes:
1. Ships standard with one ESM which provides one SCSI port.

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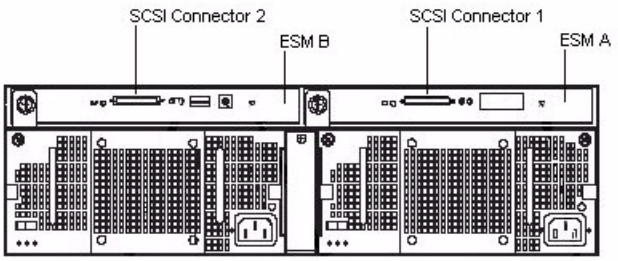

EXP400 hard disk drive (HDD) storage options

Option Number	Description	Height	Bays Supported[1]	Maximum Quantity[2]
Ultra320 HDDs				
40K1023	73.4GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1024	146.8GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1025	300GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1026	36.4GB 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1027	73.4GB 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1028	146.8 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14

Notes:
1. EXP400 Storage Expansion Unit ships with 14 slim-line hot-swap bays which can be configured as a single bus, two independent buses or a twintailed single bus.
2. Twintailing reduces the maximum number of HDDs on a single bus to 13.

EXP400 other options

Option Number	Description	Max Qty
59P5018	SCSI Bus Expander and Enclosure Services Module (ESM)[1]	1
09N7296	Rack-To-Tower Conversion Kit	1

Notes:
1. The optional ESM allows for twintailing, clustering, and is required for redundant connections to supported dual-controller disk systems.

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Chapter 39. EXP420 storage expansion unit

Table 99. EXP420 Storage Expansion Unit At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (Std/Max) - Size
System Storage DS4000 EXP420[1]	1812-8VH	SATA	16/16	Y	8TB	483mm x 559mm x 129mm (19in x 22in x 5.1in)	Rack Drawer (3U)	38.56kg (85lbs)	2/2 - 600w
Note: To determine cabling requirements, refer to the host systems Standard Cabling section and/or the I/O Option Attributes section for external connection information.									

Notes:
1. Includes two 4Gbps SW SFPs, dual hot-swap 600w redundant power supplies,and two rack power cables.

Table 100. Additional Features

	1812-8VH
ESMs (std/max)	2/2
Fibre Ports (std/max)	4/4

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EXP420 hard disk drive (HDD) storage options

Option Number	Description	Height	Bays Supported	Maximum Quantity
SATA HDDs				
42D0389	DS4200 Enhanced 500GB SATA Value Disk Drive Module	SL	1 ... 16	16

EXP420 other options

Option Number	Description	Max Qty
26K7941	SW 4 Gbps SFP Transceiver Pair	1
39M5696	1m LC-LC Fibre Channel Cable	-
39M5697	5m LC-LC Fibre Channel Cable	-
39M5698	25m LC-LC Fibre Channel Cable	-

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Chapter 40. TotalStorage DS300 disk system

Table 101. TotalStorage DS300 Disk System At-A-Glance

Name	Part Number	Withdrawal Date[1]	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (std./max) - Size
TotalStorage DS300 VL[2]	1701-1RL	June 30	Ultra320 LVDS	7/14	Y	4.2TB	4.2TB	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	1/2 - 380w
TotalStorage DS300 - Single Controller[3]	1701-1RS	July 30	Ultra320 LVDS	14/14	Y	4.2TB	4.2TB	4421mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS300 - Single Controller Express Model[3, 4]	1701-1ES	-	Ultra320 LVDS	14/14	Y	4.2TB	4.2TB	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS300 - Dual Controller[5]	1701-2RD	-	Ultra320 LVDS	14/14	Y	4.2TB	4.2TB	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS300 - Dual Controller Express Model[4, 5]	1701-2ED	-	Ultra320 LVDS	14/14	Y	4.2TB	4.2TB	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
Note: To determine cabling requirements, refer to the host systems Standard Cabling section and/or the I/O Option Attributes section for external connection information.											

Notes:
1. Not available from IBM after this date. Business Partner Inventory may be available.
2. Ships standard with a single controller. Not upgradeable to dual-controllers.
3. Ships standard with a single controller. Upgradeable to dual-controllers.
4. Also includes four 146GB HDDs.
5. Ships standard with a dual-controllers.

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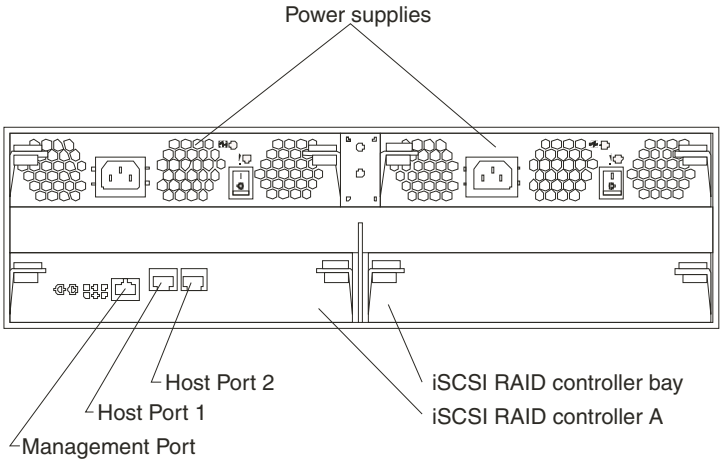
Table 102. Additional Features

	1701-1RL	1701-1RS	1701-1ES	1701-2RD	2RD
Host Ports (std/max)	1/1	2/4 [1]	2/4 [1]	4/4	4/4
Max Redundant Host Connections	-	2 [1]	2 [1]	2	2
Expansion Ports (std/max)	-	-	-	-	-
Redundant Drive Loops (std/max)	-	-	-	-	-

Notes:

1. Maximum number of host ports and redundant host connections requires upgrading to dual controllers.



TotalStorage DS300 hard disk drive (HDD) storage

Option Number	Description	Height	Bays Supported[1]	Maximum Quantity[1]
Ultra320 HDDs				
40K1023	73.4GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1024	146.8GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1025	300GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1026	36.4GB 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1027	73.4GB 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1028	146.8 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
39M4566	73.4GB 10K rpm Ultra320 SCSI Express 3-pack	SSL	1 ... 14	14
39M4565	146.8GB 10K rpm Ultra320 SCSI Express 3-pack	SSL	1 ... 14	14
39M4568	73.4GB 15K rpm Ultra320 SCSI Express 3-pack	SSL	1 ... 14	14

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Notes:

1. DS300 model 1RL in its base configuration supports seven HDDs. Installation of eight or more HDDs requires the optional Power Supply and HDD Kit.

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TotalStorage DS300 other options

Option Number	Description	Max Quantity
73P3601	iSCSI Server Adapter[1]	-
30R5201	IBM iSCSI Server TX Adapter[2]	-
30R5501	IBM iSCSI Server SX Adapter[3]	-
73P2701	PRO/1000 MT Dual Port Server Ethernet Adapter by Intel[4]	-
31P9601	PRO/1000 MT Server Ethernet Adapter by Intel[4]	-
13N1776	DS300 Redundant Controller Upgrade[6]	1
13N1778	TotalStorage Flashcopy for DS300 and DS400[7]	-
06P4055	1GB Controller System Memory Upgrade[8]	2

Notes:

1. Hardware iSCSI initiator which installs into a supported server and connects via ethernet cabling to a DS300 via required ethernet switch.
2. Provides RJ45 port for connectivity to copper cabling.
3. Provides LC fiber port for connectivity to fiber optic cabling.
4. Alternative to the Hardware iSCSI initiator when used in conjunction with a supported iSCSI software initiator (free from NOS vendor). Installs into a supported server and connects via ethernet cabling to a DS300 via required ethernet switch. The host server's integrated ethernet controller can be used as an alternative to one of the supported ethernet adapters, but with degraded server performance.
5. Available for DS300 model 1RL. Provides a second power supply and a HDD kit to support up to 14 HDDs.
6. Available for DS300 model 1RS and 1ES. Provides a second controller for redundancy with dual iSCSI ports and a dedicated ethernet port for management.
7. Simplifies backup and restore procedures. Supported on single and dual controller models.
8. Provides cache upgrade for one controller. Dual controller models require quantity two. Required for support of FlashCopy option or DS300 integration with supported IBM Director versions"

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Chapter 41. TotalStorage DS400 disk system

Table 103. TotalStorage DS400 Disk System At-A-Glance

Name	Part Number	Withdrawal Date [1]	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (TB)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (std./max) - Size
TotalStorage DS400 - Single Controller[2]	1700-1RS	-	Ultra320 LVDS	14/14	Y	4.2TB	12TB[3]	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS400 - Single Controller Express Model[2,4]	1700-1ES	July 30	Ultra320 LVDS	14/14	Y	4.2TB	12TB[3]	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS400 - Single Controller Express Model[7]	1700-1EX	-	Ultra320 LVDS	14/14	Y	4.2TB	12TB[3]	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS400 - Dual Controller[5]	1700-2RD	-	Ultra320 LVDS	14/14	Y	4.2TB	12TB[3]	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS400 - Dual Controller Express Model[5,6]	1700-2ED	July 30	Ultra320 LVDS	14/14	Y	4.2TB	12TB[3]	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
TotalStorage DS400 - Dual Controller Express Model[8]	1700-2EX	-	Ultra320 LVDS	14/14	Y	4.2TB	12TB[3]	442mm x 575mm x 128mm (17.4in x 22.64in x 5.04in)	Rack Drawer (3U)	39.46kg (87lbs)	2/2 - 380w
Note: To determine cabling requirements, refer to the host systems Standard Cabling section and/or the I/O Option Attributes section for external connection information.											

Notes:

1. Not available from IBM after this date. Business Partner Inventory may be available.
2. Ships standard with a single controller. Can be upgraded to dual-controllers.
3. 12TB of total storage is supported via 40 300GB SCSI HDDs that includes DS400 internal HDD bays and two EXP400 expansion units.
4. Also includes four 146GB HDDs, two short-wave SFP modules, two DS4000 Host Bus Adapters and two 5m LC-LC Fibre Channel cables.
5. Ships standard with a dual-controller.

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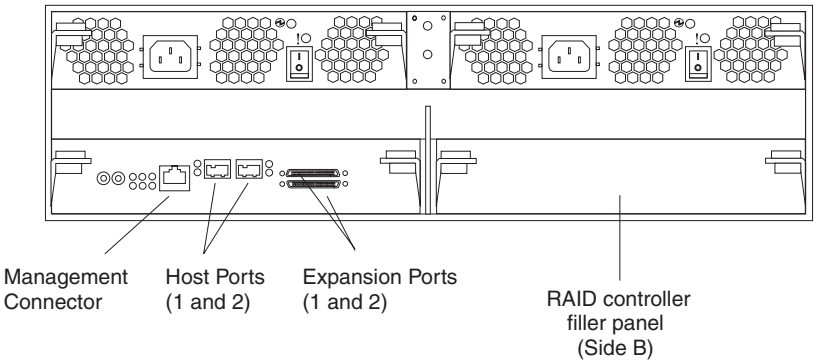
6. Also includes four 146GB HDDs, four short-wave SFP modules, four DS4000 Host Bus Adapters and four 5m LC-LC Fibre Channel cables.
7. Also includes two short-wave SFP modules, two DS4000 Host Bus Adapters and two 5m LC-LC Fibre Channel cables.
8. Also includes four short-wave SFP modules, four DS4000 Host Bus Adapters and four 5m LC-LC Fibre Channel cables.

Table 104. Additional Features

	1700-1RS	1700-1ES	1700-2RD	1700-2ED
Host Partitions (std/max)	-	-	-	-
Host Ports (std/max)	2/4[1]	2/4[1]	4/4	4/4
Max Redundant Host Connections	-	-	2	2
Expansion Ports (std/max)	2/4[1, 2]	2/4[1, 2]	4/4[2]	4/4[2]
Redundant Drive Loops (std/max)	-	-	2/2	2/2
Note: DS400 Supports short-wave connections on host and expansion ports. Long-wave connections are supported on host ports only.				

Notes:
1. Adding host and expansion ports requires upgrading to dual controllers.
2. A maximum of two expansion units can be connected to the DS400. Additional expansion ports provide redundancy and workload distribution across SCSI channels.



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TotalStorage DS400 hard disk drive (HDD) storage

Option Number	Description	Height	Bays Supported	Maximum Quantity
Ultra320 HDDs				
40K1023	73.4GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1024	146.8GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1025	300GB 10K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1026	36.4GB 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1027	73.4GB 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
40K1028	146.8 15K rpm Ultra320 SCSI HDD	SSL	1 ... 14	14
39M4566	73.4GB 10K rpm Ultra320 SCSI Express 3-pack	SSL	1 ... 14	14
39M4565	146.8GB 10K rpm Ultra320 SCSI Express 3-pack	SSL	1 ... 14	14
39M4568	73.4GB 15K rpm Ultra320 SCSI Express 3-pack	SSL	1 ... 14	14
External Storage Expansion Units 1				
17331RU	EXP400 Storage Expansion Unit[2]	-	-	2

Notes:
1. External options may require software upgrades, licenses, etc. Refer to the "Other Options" table for possible required related options.
2. 13 HDDs supported in each EXP400 when attached to DS400. Attachment requires one 0.8mm VHDCI - to- 0.8mm VHDCI SCSI cable per controller in the DS400. In addition, a second ESM for the EXP400 is required for redundancy when attached to a dual controller DS400.

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TotalStorage DS400 other options

Option Number	Description	Max Qty
24P0960	DS4000 Host Bus Adapter[1]	-
13N1873	IBM 2 Gbps FC Host Bus Adapter[1]	-
13N1777	DS400 Redundant Controller Upgrade[2]	1
13N1779	DS400 EXP400 Attach License[3]	-
13N1778	TotalStorage Flashcopy for DS300 and DS400[4]	-
13N1796	Single Short-Wave SFP Module	4[5]
03K9310	2m External Ultra2 SCSI Cable[6]	4
03K9311	4.2m External Ultra2 SCSI Cable[6]	4
06P4055	1GB Controller System Memory Upgrade[7]	2

Notes:
1. Installs into a supported server and connects via fibre channel cabling directly to the DS400 or to a supported fibre channel switch.
2. Available for DS400 model 1RS and 1ES. Provides a second controller for redundancy with dual 2Gb fibre channel ports.
3. License to attach two EXP400 expansion units. Supported on Single Controller and Dual Controller models.
4. Simplifies backup and restore procedures. Supported on Single Controller and Dual Controller models.
5. Does not ship with any SFP modules. Four are supported with two controllers.
6. 0.8mm VHDCI -to- 0.8mm VHDCI SCSI cable.
7. Provides cache upgrade for one controller. Dual controller models require quantity two. Required for support of FlashCopy option or DS400 integration with supported IBM Director versions.

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Chapter 42. TotalStorage DS4100 disk system

Table 105. TotalStorage DS4100 Disk System At-A-Glance

Name	Part Number	Withdrawal Date [1]	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Internal HDD Storage (Std/Max)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (std./max) - Size
DS4100 Dual Controller[2]	172410G	-	SATA	14/ 14	Y	0/5.6TB	44.8TB[3]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	40kg (88.2lbs)	2/2 - 390w
DS4100 Dual Controller Express Model[4]	172410J	Jan 24	SATA	14/ 14	Y	1.25TB/5.6TB[5]	44.8TB[3]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	40kg (88.2lbs)	2/2 - 390w
DS4100 Single Controller[2]	17241SC	-	SATA	14/ 14	Y	750GB/5.6TB[4]	5.6TB[5]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	37.27kg (82.2lbs)	1/1 - 390w
DS4100 Single Controller Express Model	17241SJ	July 30	SATA	14/ 14	Y	1.25TB/5.6TB[5]	5.6TB[5]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	37.27kg (82.2lbs)	1/1 - 390w
Note: To determine cabling requirements, refer to the host systems Standard Cabling section and/or the I/O Option Attributes section for external connection information.											

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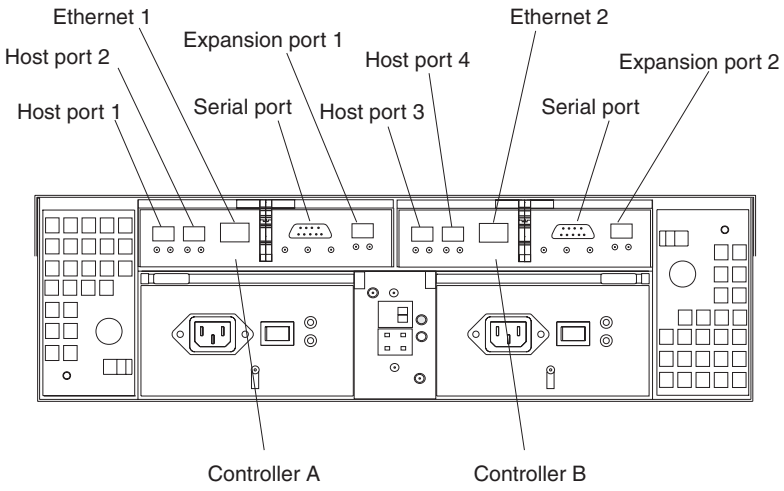
Notes:
1. Not available from IBM after this date. Business Partner Inventory may be available.
2. DS4100 ships with the rail mounting kit and two (model 1SC ships with one) 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14). If US power cords are required, then order the necessary quantity of PN 94G6667.
3. 44.8TB of total storage is supported via 112 400GB SATA HDDs installed in a redundant storage loop that includes DS4100 internal HDD bays and seven DS4000 EXP100 expansion units.
4. Model 1SC ships standard with three 250GB SATA HDDs.
5. Single controller models do not support attachment to external expansion units.

Table 106. Additional Features

	1724-100	1724-1SC
Host Partitions (std/max)	*/16[1]	*/16[1]
Host Ports (std/max)	4/4	2/2
Max Redundant Host Connections	2	-
Expansion Ports (std/max)	2/2	0/0
Redundant Drive Loops (std/max)	1/1	0/0

Notes:
1. Ships with a single Host Default Group.



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TotalStorage DS4100 hard disk drive (HDD) storage

Option Number	Description	Height	Bays Supported	Max Qty
FastT SATA HDDs				
39M4570	DS4000 400GB 7200RPM SATA HDD	SL	1 ... 14	14
23R0285	DS4000 400GB 7200RPM SATA HDD - 4 Pack	SL	1 ... 14	-
External Storage Expansion Units[1]		**Form Factor**		
171010U	FAStT EXP100 Storage Expansion Unit[2]	Rack (3U)		

Notes:
1. External options may require software upgrades, licenses, etc. Refer to the "Other Options" table for possible related options
2. Model 1SC currently does not support attachment to external expansion units.

TotalStorage DS4100 other options

Option Number	Description
DS4100 Model 100/10G	
24P8997	DS4100 Flash Copy
39M5720	DS4100 VolumeCopy
39M5719	DS4100 Flash/VolumeCopy
25R0051	DS4100 Intel Pack
25R0060	DS4100 Linux/Intel Host Kit[1]
25R0061	DS4100 Novell Netware Host Kit[1]
25R0062	DS4100 VMware Host Kit[1]
25R0063	DS4100 AIX Host Kit[1]
25R0066	DS4100 Sun Host Kit[1]
25R0137	DS4100 Linux for Power Host Kit[1]
25R0069	DS4100 HP-UX Host Kit
25R0213	DS4100 4th-7th EXP100 Attach
25R0072	DS4100 4 Storage Partition Activation
25R0074	DS4100 8 Storage Partition Activation
25R0077	DS4100 16 Storage Partition Activation
25R0080	DS4100 4 to 8 Storage Partition Upgrade
25R0081	DS4100 8 to 16 Storage Partition Upgrade
39M5602	DS4100 Enhanced Remote Mirroring[2]

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Option Number	Description
DS4100 Model 1SC	
39M5950	DS4100 Redundant Controller Upgrade
24P8997	DS4100 Flash Copy
25R0051	DS4100 Intel Pack
25R0060	DS4100 Linux/Intel Host Kit
25R0061	DS4100 Novell Netware Host Kit
25R0062	DS4100 VMware Host Kit
25R0063	DS4100 AIX Host Kit
25R0066	DS4100 Sun Host Kit
25R0137	DS4100 Linux for Power Host Kit
25R0069	DS4100 HP-UX Host Kit
25R0072	DS4100 4 Storage Partition Activation
25R0074	DS4100 8 Storage Partition Activation
25R0077	DS4100 16 Storage Partition Activation
25R0080	DS4100 4 to 8 Storage Partition Upgrade
25R0081	DS4100 8 to 16 Storage Partition Upgrade
Other Options	
19K1271	Short-wave SFP Module
19K1272	Long-wave SPF Module
39M5696	1m LC-LC Fibre Channel Cable
39M5697	5m LC-LC Fibre Channel Cable
39M5698	25m LC-LC Fibre Channel Cable
19K1250	1m LC-SC Fibre Channel Adapter Cable[3]

Notes:
1. Licensed one per DS4100.
2. Available for DS4100 Dual Controller only.
3. Designed to connect a 1Gb device or cable to a 2Gb device or cable.

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Chapter 43. System Storage DS4200 disk system

Table 107. TotalStorage DS4200 Disk System At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Internal HDD Storage (Std/Max)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (std./max) - Size
DS4200 Express Model 7V[1]	18147VH	SATA	16/16	Y	0/8TB	56TB[2]	482mm x 572mm x 130mm (19in x 22.5in x 5.10in)	Rack Drawer (3U)	39.92kg (88.2lbs)	2/2 - 390w
Note: Requires attachment to a Fibre Channel host bus adapter or to a Fibre Channel/SAN switch.										

Notes:
1. DS4200 Model 7V provides two RAID controllers with 1GB Cache each. Ships with the rail mounting kit, four 4GBps SFP transceivers, and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14.)
2. Based on a maximum of 112 500GB Fibre Channel HDDs installed in DS4200 and six EXP420 expansion units.

Table 108. Additional Features

	1814-7VH
Host Partitions (std/max)	2/64
Host Ports (std/max)	4/4
Max Redundant Host Connections	2
Expansion Ports (std/max)	4/4
Redundant Drive Loops (std/max)	2/2
Note: DS4200 ships standard with four SFP's which can be used in any of the Host Ports or Expansion Ports. Up to four additional SFP's can be ordered to add full support for all ports.	

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System Storage DS4200 hard disk drive (HDD) storage

Option Number	Description	Height	Bays Supported	Max Qty
FastT SATA HDDs				
42D0389	DS4200 500GB SATA EV-DDM	SL	1 ... 16	16
External Storage Expansion Units[1]				
18128VH	System Storage DS4000 EXP420			

Notes:
1. External options may require software upgrades, licenses, etc. Refer to the 'Other Options' table for possible related options

System Storage DS4200 other options

Option Number	Description	Max Qty
Other Options		
39M5894	DS4000 1-pt PCI-X 4 Gbps HBA	-
39M5895	DS4000 2-pt PCI-X 4 Gbps HBA	-
41Y0743	DS4200 FlashCopy	-
41Y0746	DS4200 VolumeCopy	1
41Y0738	DS4200 Flash/VolumeCopy	1
41Y0739	DS4200 Enhanced Remote Mirror	1
39M5954	DS4200 EXPs Attach 1-3	1
39M5957	DS4200 EXPs Attach 4-6	1
39M6009	DS4200 Linux/Intel Host Kit	1
39M6041	DS4200 Novell Netware Host	1
39M6048	DS4200 AIX Host Kit	1
41Y5163	DS4200 SUN Host Kit	1
41Y0686	DS4200 HPUX Host Kit	1
42D3252	DS4200 Linux on Power Host	1
39M6046	DS4200 VMware ESX Host Kit	1
42D3254	DS4200 2-4 Storage Partition Upgrade	1
42D3257	DS4200 2-8 Storage Partition Upgrade	1
42D3260	DS4200 4-8 Storage Partition Upgrade	1
42D3263	DS4200 4-16 Storage Partition Upgrade	1
42D3266	DS4200 8-16 Storage Partition Upgrade	1
42D3269	DS4200 8-64 Storage Partition Upgrade	1

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Option Number	Description	Max Qty
42D3272	DS4200 16-64 Storage Partition Upgrade	1
26K7941	SW 4 Gbps SFP Transceiver Pair[1]	1
39M5696	1m Fiber Optic Cable LC-LC	-
39M5697	5m Fiber Optic Cable LC-LC	-
39M5698	25m Fiber Optic Cable LC-LC	-

Notes:
1. Option includes two 4Gbps SW SFPs.

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Chapter 44. TotalStorage DS4300 disk system

Table 109. TotalStorage DS4300 Disk System At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (std./max) - Size
DS4300 - Single Controller[1]	17226LG	Fibre Channel	14/ 14	Y	4.2TB	4.2TB	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	41.04kg (90.48lbs)	1/2 - 390w
DS4300 - Single Controller Express Model[2]	17226LJ	Fibre Channel	14/ 14	Y	4.2TB	4.2TB	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	41.04kg (90.48lbs)	1/2 - 390w
DS4300 - Dual Controller[3]	172260G	Fibre Channel	14/ 14	Y	4.2TB	16.8TB[4]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	45.87kg (101.26lbs)	2/2 - 390w
DS4300 - Dual Controller Express Model[5]	172260J	Fibre Channel	14/ 14	Y	4.2TB	16.8TB[4]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	45.87kg (101.26lbs)	2/2 - 390w
DS4300 - Dual Controller Express Model (No Hard Drives)[6]	172260K	Fibre Channel	14/ 14	Y	4.2TB	16.8TB[4]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	45.87kg (101.26lbs)	2/2 - 390w
DS4300 Turbo[7]	24P8215	Fibre Channel	14/ 14	Y	4.2TB	33.6TB[9]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	45.87kg (101.26lbs)	2/2 - 390w

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Table 109. TotalStorage DS4300 Disk System At-A-Glance (continued)

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (std./max) - Size
DS4300 Turbo Express Model[8]	172260L	Fibre Channel	14/ 14	Y	4.2TB	33.6TB[9]	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	45.87kg (101.26lbs)	2/2 - 390w
Note: Requires attachment to a Fibre Channel host bus adapter or to a Fibre Channel/SAN switch.										

Notes:
1. DS4300 - Single Controller provides a single, low-cost RAID controller and can be upgraded to DS4300 - Dual Controller. Ships with the rail mounting kit, a 2.8m/9ft intra-rack power cord (IEC 320-C13 to IEC 320-C14) and a 2.8m U.S. line cord (100-120V, C13 to NEMA 5-15P).
2. DS4300 - Single Controller Express Model provides a single, low-cost RAID controller and can be upgraded to DS4300 - Dual Controller. Ships with two shortwave SFPs, two 1 meter fibre optic cables, rail mounting kit, a 2.8m/9ft intra-rack power cord (IEC 320-C13 to IEC 320-C14.) and a 2.8m U.S. line cord (100-120V, C13 to NEMA 5-15P).
3. DS4300 - Dual Controller provides two RAID controllers with 256MB Cache each and can be upgraded to DS4300 Turbo. Ships with the rail mounting kit, two 2.8m/9ft intra-rack power cord (IEC 320-C13 to IEC 320-C14) and two 2.8m U.S. line cords (100-120V, C13 to NEMA 5-15P).
4. Based on a maximum of 56 300GB FC HDDs installed in the redundant storage loop that includes the DS4300 internal HDD bays and three FAStT EXP710 expansion units.
5. DS4300 - Dual Controller Express Model provides two RAID controllers with 256MB Cache each and can be upgraded to DS4300 Turbo. Ships with two SFPs, two 1 meter fibre cables, ten 73.4GB 10k RPM hard disks, rail mounting kit, two 2.8m/9ft intra-rack power cord (IEC 320-C13 to IEC 320-C14) and two 2.8m U.S. line cords (100-120V, C13 to NEMA 5-15P).
6. DS4300 - Dual Controller Express Model provides two RAID controllers with 256MB Cache each and can be upgraded to DS4300 Turbo. Ships with two SFPs, two 1 meter fibre cables, rail mounting kit, two 2.8m/9ft intra-rack power cord (IEC 320-C13 to IEC 320-C14) and two 2.8m U.S. line cords (100-120V, C13 to NEMA 5-15P).
7. DS4300 Turbo provides two RAID controllers with 512MB cache each. Ships with the rail mounting kit, two 2.8m/9ft intra-rack power cord (IEC 320-C13 to IEC 320-C14) and two 2.8m U.S. line cords (100-120V, C13 to NEMA 5-15P).
8. DS4300 Turbo Express Model provides two RAID controllers with 512MB cache each. Ships with two shortwave SFPs, two 1 meter fibre cables, rail mounting kit, two 2.8m/9ft intra-rack power cord (IEC 320-C13 to IEC 320-C14) and two 2.8m U.S. line cords (100-120V, C13 to NEMA 5-15P).
9. Based on a maximum of 112 300GB FC HDDs installed in the redundant storage loop that includes the DS4300 internal HDD bays and seven EXP710 expansion units.

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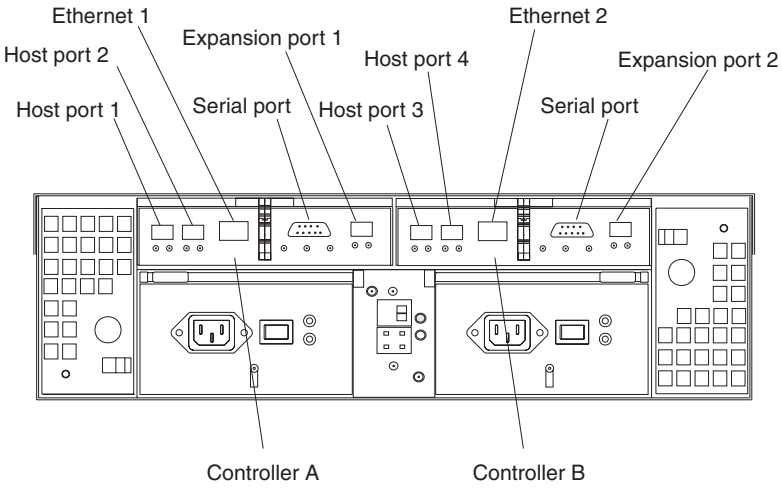
Table 110. Additional Features

	17226LG	17226LJ	172260G	172260J	172260L	24P8215	172260K
Host Partitions (std/max)	*/16[1]	*/16[1]	*/16[1]	*/16[1]	*/16[1]	8/64	8/64
Host Ports (std/max)	2/4[2]	2/4[2]	4/4	4/4	4/4	4/4	4/4
Max Redundant Host Connections	-	-	2	2	2	2	2
Expansion Ports (std/max)	0/2[2]	0/2[2]	2/2	2/2	2/2	2/2	2/2
Redundant Drive Loops (std/max)	-	-	1/1	1/1	1/1	1/1	1/1

Notes:
1. Ships with a single Default Host Group which does not provide storage partitioning capabilities.
2. Adding host and expansion ports requires upgrading to dual controllers.



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TotalStorage DS4300 hard disk drive (HDD) storage

Option Number	Description	Height	Bays Supported	Maximum Quantity
06P5762	73.4GB 10K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
32P0765	146.8GB 10K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
73P8005	300GB 10K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
06P5772	36.4GB 15K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
32P0768	73.4GB 15K rpm 2Gbps Disk Module	SL	1 ... 14	14
73P8022	146.8GB 15K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
22R5030	DS4000 73GB 10K FC HDD - 4 Pack	SL	1 ... 14	-
22R5031	DS4000 73GB 15K FC HDD - 4 Pack	SL	1 ... 14	-
22R5032	DS4000 146GB 10K FC HDD - 4 Pack	SL	1 ... 14	-
22R5033	DS4000 146GB 15K FC HDD - 4 Pack	SL	1 ... 14	-
22R5034	DS4000 300GB 10K FC HDD - 4 Pack	SL	1 ... 14	-
External Storage Expansion Units[1]				
171010U	FAStT EXP100 Storage Expansion Unit	-		
1740710	DS4000 EXP710 Storage Expansion Unit	-		

Notes:
1. External options may require software upgrades, licenses, etc. Refer to the “Other Options” table for possible related options.

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TotalStorage DS4300 other options

Option Number	Description	Max Qty
24P8149	DS4300 1st EXP700 Attach[1,16]	-
24P8151	DS4300 2nd EXP700 Attach[2,16]	-
24P8066	DS4300 Two EXP700 Attach[3,16]	-
24P8183	DS4300 3rd EPX700 Attach[4,16]	-
24P8180	DS4300 Three EXP700 Attach[5,16]	-
24P8067	DS4300 Intel Pack[6, 7, 8]	-
24P8068	DS4300 Linux/Intel Host Kit[7, 8]	-
24P8069	DS4300 Novell Netware Host Kit[7, 8]	-
24P8070	DS4300 VMware Host Kit[7, 8]	-
24P8072	DS4300 AIX Host Kit[7, 9]	-
24P8073	DS4300 Sun Host Kit[7, 8]	-
24P8074	DS4300 HP-UX Host Kit[7, 8]	-
25R0091	DS4300 Linux for Power Host Kit[7, 8]	-
24P8075	DS4300 4-Storage Partition Activation[10]	-
24P8157	DS4300 8-Storage Partition Activation	-
24P8221	DS4300 16-Storage Partition Activation	-
24P8154	DS4300 4 to 8 Storage Partition Upgrade	-
24P8223	DS4300 8 to 16 Storage Partition Upgrade[8]	-
24P8963	DS4300 Entry Upgrade Kit[11]	-
24P8964	DS4300 Entry Turbo Option Upgrade Kit[12]	-
24P8216	DS4300 Turbo Option Upgrade Kit[13]	-
24P8222	DS4300 Turbo 8 to 64 Partitions	-
24P8224	DS4300 Turbo 16 to 64 Partition Upgrade	-
24P8217	DS4300 Turbo FlashCopy Activation	-
24P8218	DS4300 Turbo VolumeCopy Activation	-
24P8219	DS4300 Turbo combined FlashCopy and VolumeCopy Activation	-
25R0168	DS4300 Turbo Enhanced Remote Mirror	-
25R0169	DS4300 w/Turbo FC/SATA Enclosure Intermix	-
25R0416	DS4300 Database Backup (DB2/AIX)	-
39M5711	DS4300 Integrated Backup for Databases (IBD) for Exchange	-
22R5037	DS4300 Express Model Intel Pack[14]	-
22R5038	DS4300 Express Model AIX Host Kit[14]	-
22R5039	DS4300 Express Model HP Host Kit[14]	-
22R5040	DS4300 Express Model Sun Host Kit[14]	-
22R5041	DS4300 Express Model 4-Storage Partition Kit[14]	-

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Option Number	Description	Max Qty
22R5042	DS4300 Express Model FlashCopy Activation[14]	-
22R5043	DS4300 Express Model 1st EXP Attach[14]	-
22R5044	DS4300 Express Model Two EXP Attach[14]	-
19K1271	Short-wave SFP Module	6
39M5696	1m LC-LC Fibre Channel Cable	-
39M5697	5m LC-LC Fibre Channel Cable	-
39M5698	25m LC-LC Fibre Channel Cable	-
19K1250	1m LC-SC Fibre Channel Adapter Cable[15]	-

Notes:
1. License to attach 15 to 28 HDDs.
2. License to attach 29 to 42 HDDs.
3. License kit upgrade to support up to 42 HDDs.
4. License to attach 43 to 56 HDDs.
5. License to attach up to 56 HDDs.
6. Upgrade to support four partitions and provides the Novell Netware and Linux Host kits.
7. Licensed one per DS4300.
8. This option is available for all models of DS4300.
9. This option is not available for DS4300 - Single Controller.
10. Upgrade to support four partitions.
11. Upgrades DS4300 - Single Controller to DS4300 - Dual Controller by providing two RAID controllers with 256MB Cache each and an additional power supply.
12. Upgrades DS4300 - Single Controller to DS4300 Turbo by providing two RAID controllers with 1GB Cache each, an additional power supply, license to attach 112 HDDs through seven EXP710s and license for eight partitions.
13. The DS4300 Turbo option includes two RAID Blades with 1GB Cache each (2GB total), FAStT Storage Manager v8.4, license to attach 112 HDDs through seven EXP710s and license for eight partitions.
14. For DS4300 Express Models only.
15. Designed to connect a 1Gb device or cable to a 2Gb device or cable.
16. Provides support for EXP710 attach as well.

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Chapter 45. TotalStorage DS4500 disk system

Table 111. TotalStorage DS4500 Disk System At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (Std/Max) - Size
DS4500 [1]	174290G	-	0/0	-	-	67.2TB[2]	482mm x 635mm x 174.5mm (18.97in x 24.0in x 6.87in)	Rack Drawer (4U)	43.9kg (97lbs)	2/2 - 175w
Note: Requires attachment to a Fibre Channel host bus adapter or to a Fibre Channel/SAN switch.										

Notes:
1. DS4500 provides two RAID controllers with 1GB Cache each. Ships with rail mounting kit, two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14) and two 2.8m U.S. line cords (100-120V, C13 to NEMA 5-15P).
2. DS4500 ships standard with two DS4000 mini-hubs installed as expansion ports providing one expansion port each. Two more mini-hubs can be added for a total of four expansion ports.

Table 112. Additional Features

	174290G
Host Partitions (std/max)	16/64
Host Ports (std/max)	4/8[1]
Max Redundant Host Connections	4
Expansion Ports (std/max)	2/4[2]
Redundant Drive Loops (std/max)	1/2

Notes:
1. DS4500 ships standard with two DS4000 mini-hubs installed as host ports providing two host ports each. Two more mini-hubs can be added for a total of eight host ports.
2. DS4500 ships standard with two DS4000 mini-hubs installed as expansion ports providing one expansion port each. Two more mini-hubs can be added for a total of four expansion ports.

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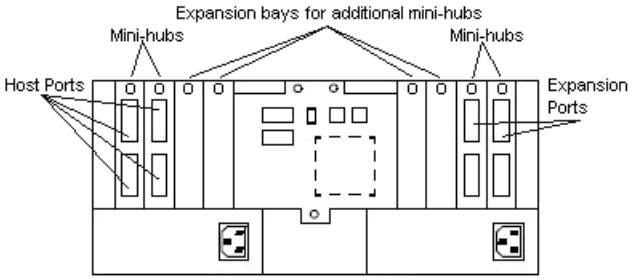

Figure 95. FAStT900 storage server

TotalStorage DS4500 hard disk drive (HDD) storage

Option Number	Description
	External Storage Expansion Units[1]
171010U	DS4000 EXP100 Storage Expansion Unit
1740710	DS4000 EXP710 Storage Expansion Unit

Notes:
1. External options may require software upgrades, licenses, etc. Refer to the “Other Options” table for possible related options.

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TotalStorage DS4500 other options

Option Number	Description	Max Qty
24P7981	FAStT900 AIX Host Kit[1]	-
24P7982	FAStT900 Sun Host Kit[1]	-
24P7983	FAStT900 HP-UX Host Kit[1]	-
25R0103	FAStT900 Linux for Power Host Kit[1]	-
24P7984	FAStT900 Upgrade for 16 to 64 Storage Partitions	-
24P7985	FAStT900 FlashCopy Activation[1]	-
24P8227	FAStT900 VolumeCopy Activation[2]	-
24P8228	FAStT900 combined FlashCopy and VolumeCopy Activation[2]	-
25R0415	DS4500/DS4400 Database Backup (DB2/AIX)	-
39M5713	DS4500/DS4400 Integrated Backup for Databases (IBD) for Exchange	-
25R0167	DS4500 Enhanced Remote Mirror	-
25R0247	DS4500 FC/SATA Enclosure Intermix	-
22R5036	DS4000 xSeries HBAs - 2 Pack	-
19K1269	FAStT700/900 Mini Hub	8
19K1271	Short-wave SFP Module	16
39M5696	1m LC-LC Fibre Channel Cable	-
39M5697	5m LC-LC Fibre Channel Cable	-
39M5698	25m LC-LC Fibre Channel Cable	-
19K1250	1m LC-SC Fibre Channel Adapter Cable[3]	-

Notes:
1. Licensed one per DS4500.
2. Requires Storage Manager v8.4.
3. Designed to connect a 1Gb device or cable to a 2Gb device or cable.

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Chapter 46. TotalStorage DS4700 disk system

Table 113. TotalStorage DS4700 Disk System At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (Std/Max) - Size
DS4700 Express Model 70[1]	181470H	Fibre Channel	16/16	Y	4.8TB	33.6TB[3]	482mm x 572mm x 130mm (19in x 22.5in x 5.10in)	3U Rack	39.92kg	2/2
DS4700 Express Model 72[2]	181472H	Fibre Channel	16/16	Y	4.8TB	33.6TB[3]	482mm x 572mm x 130mm (19in x 22.5in x 5.10in)	3U Rack	39.92kg	2/2
Note: Requires attachment to a Fibre Channel host bus adapter or to a Fibre Channel/SAN switch.										

Notes:
1. DS4700 Model 70 provides two RAID controllers with 1GB Cache each. Ships with the rail mounting kit, four 4GBps SFP transceivers, and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14.)
2. DS4700 Model 72 provides two RAID controllers with 2GB Cache each. Ships with the rail mounting kit, four 4GBps SFP transceivers, and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14.)
3. Based on a maximum of 112 300GB Fibre Channel HDDs installed in DS4700 and six EXP810 expansion units.

Table 114. Additional Features

	181470H	181472H
Host Partitions (std/max)	2/16	8/16
Host Ports (std/max)	4/8	8/8
Max Redundant Host Connections	4	4
Expansion Ports (std/max)	4/4	4/4
Redundant Drive Loops (std/max)	2/2	2/2

Notes:
1. DS4700 ships standard with four SFP's which can be used in any of the Host Ports or Expansion Ports. Up to eight additional SFP's can be ordered to add full support for all ports.

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TotalStorage DS4700 hard disk drive (HDD) storage

Option Number	Description	Height	Bays Supported	Maximum Quantity
39M4586	73.4GB 10K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
39M4590	146.8GB 10K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
39M4594	300GB 10K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
40K6800	36.4GB 15K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
40K6804	73.4GB 15K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
40K6808	146.8GB 15K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
40K6812	4 Gbps FC, 36.4 GB/15K E-DDM Disk Module	SL	1 ... 16	16
40K6816	4 Gbps FC, 73.4 GB/15K E-DDM Disk Module	SL	1 ... 16	16
40K6820	4 Gbps FC, 146.8 GB/15K E-DDM Disk Module	SL	1 ... 16	16
39M4554	500 GB/7.2K SATA E-DDM	SL	1 ... 16	16
	External Storage Expansion Units[1]			
181281H	DS4000 EXP810 Storage Expansion Unit	-		

Notes:
1. External options may require software upgrades, licenses, etc. Refer to the “Other Options” table for possible related options.

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TotalStorage DS4700 other options

Option Number	Description	Max Qty
39M5894	DS4000 1-pt PCI-X 4 Gbps HBA	-
39M5895	DS4000 2-pt PCI-X 4 Gbps HBA	-
41Y5203	DS4700 FlashCopy[1]	-
41Y5208	DS4700 VolumeCopy [1]	1
41Y5212	DS4700 Flash/VolumeCopy[1]	1
41Y5214	DS4700 Enhanced Remote Mirror[1]	1
41Y5217	DS4700 FC/SATA Enclosure Intermix	1
41Y5201	DS4700 IBD for Exchange	1
41Y5222	DS4700 Mod 70 EXPs Att 1-3[1]	1
41Y5225	DS4700 Mod 70 EXPs Att 4-6[1]	1
41Y0704	DS4700 Mod 72 EXPs Att 4-6[1]	1
41Y5178	DS4700 Linux/Intel Host Kit[1]	1
41Y5180	DS4700 Novell Netware Host[1]	1
41Y5184	DS4700 AIX Host Kit [1]	1
41Y5186	DS4700 SUN Host Kit[1]	1
41Y5188	DS4700 HPUX Host Kit[1]	1
41Y5190	DS4700 Linux on Power Host[1]	1
41Y5182	DS4700 VMware ESX Host Kit	1
41Y5228	DS4700 2-4 Storage Partition Upgrade[1]	1
41Y0652	DS4700 2-8 Storage Partition Upgrade[1]	1
41Y0656	DS4700 4-8 Storage Partition Upgrade[1]	1
41Y0660	DS4700 4-16 Storage Partition Upgrade[1]	1
41Y0664	DS4700 8-16 Storage Partition Upgrade[1]	1
41Y0668	DS4700 8-64 Storage Partition Upgrade[1]	1
41Y0672	DS4700 16-64 Storage Partition Upgrade[1]	1
26K7941	SW 4 Gbps SFP transceiver pair[2]	1
39M5696	1m Fiber Optic Cable LC-LC	1
39M5697	5m Fiber Optic Cable LC-LC	1
39M5698	25m Fiber Optic Cable LC-LC	1

Notes:
1. Licensed one per DS4700.
2. Option includes two 4Gbps SW SFPs.

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Chapter 47. TotalStorage DS4800 disk system

Table 115. TotalStorage DS4800 Disk System At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Max Supported Storage Capacity	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (std./max) - Size
DS4800 Disk System Model 80[1]	181580H	-	0/0	-	-	67.2TB[5]	482mm x 635mm x 174.5mm (18.97in x 24.0in x 6.87in)	Rack Drawer (4U)	36.38kg (80.2 lbs)	2/2 - 540w
DS4800 Disk System Model 82[2]	181582H	-	0/0	-	-	67.2TB[5]	482mm x 635mm x 174.5mm (18.97in x 24.0in x 6.87in)	Rack Drawer (4U)	36.38kg (80.2 lbs)	2/2 - 540w
DS4800 Disk System Model 84[3]	181584H	-	0/0	-	-	67.2TB[5]	482mm x 635mm x 174.5mm (18.97in x 24.0in x 6.87in)	Rack Drawer (4U)	36.38kg (80.2 lbs)	2/2 - 540w
DS4800 Disk System Model 88[4]	181588H	-	0/0	-	-	67.2TB[5]	482mm x 635mm x 174.5mm (18.97in x 24.0in x 6.87in)	Rack Drawer (4U)	36.38kg (80.2 lbs)	2/2 - 540w
Note: Requires attachment to a Fibre Channel host bus adapter or to a Fibre Channel/SAN switch.										

Notes:
1. DS4800 Model 80H provides two RAID controllers with 2GB Cache each. Ships with the rail mounting kit, eight 4GBps SFP transceivers, and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14.)
2. DS4800 Model 82H provides two RAID controllers with 2GB Cache each. Ships performance key enabled with the rail mounting kit, eight 4GBps SFP transceivers, and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14.)
3. DS4800 Model 84H provides two RAID controllers with 4GB Cache each. Ships with the rail mounting kit, eight 4GBps SFP transceivers, and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14.)
4. DS4800 Model 88H provides two RAID controllers with 8GB Cache each. Ships with the rail mounting kit, eight 4GBps SFP transceivers, and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14.)
5. Based on a maximum of 224 300GB Fibre Channel HDDs installed in a maximum of 16 DS4000 EXP710 expansion units.

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Table 116. Additional Features

	181580H	181582H	181584H	181588H
Host Partitions (std/max)	8/64	8/64	8/64	8/64
Host Ports (std/max)	8/8[1]	8/8[1]	8/8[1]	8/8[1]
Max Redundant Host Connections	4	4	4	4
Expansion Ports (std/max)	8/8[1]	8/8[1]	8/8[1]	8/8[1]

Notes:
1. DS4800 ships standard with eight SFP's which can be used in any of the Host Ports or Expansion Ports. Up to eight additional SFP's can be ordered to add full support for all ports.

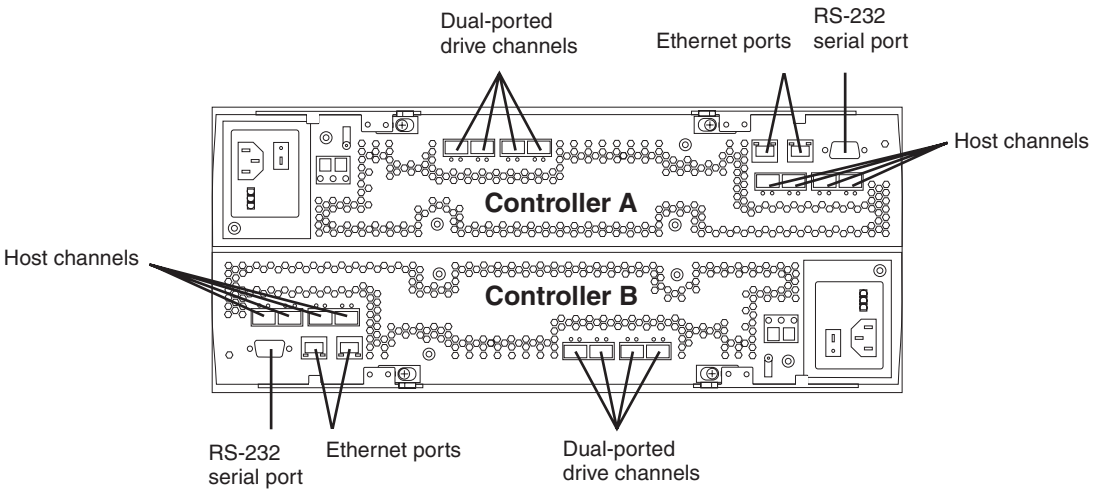

Figure 96. DS4800 rear view

TotalStorage DS4800 hard disk drive (HDD) storage

Option Number	Description
External Storage Expansion Units[1]	
171010U	DS4000 EXP100 Storage Expansion Unit
1740710	DS4000 EXP710 Storage Expansion Unit
181281H	DS4000 EXP810 Storage Expansion Unit

Notes:
1. External options may require software upgrades, licenses, etc. Refer to the 'Other Options' table for possible related options.

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TotalStorage DS4800 other options

Option Number	Description	Max Qty
23R1987	DS4800 Mod 80 EXPs Att (8-16)	-
22R4252	DS4800 Linux/Intel Host Kit[1]	-
22R4253	DS4800 Novell Netware Host Kit[1]	-
22R4254	DS4800 VMware ESX Host Kit[1]	-
22R4255	DS4800 AIX Host Kit[1]	-
22R4256	DS4800 SUN Host Kit[1]	-
22R4257	DS4800 HP-UX Host Kit[1]	-
22R4258	DS4800 Linux on Power Host[1]	-
22R4670	DS4800 Upgrade from 8-16 Storage Partitions	-
22R4671	DS4800 Upgrade from 8-64 Storage Partitions	-
22R4259	DS4800 Upgrade from 16-64 Storage Partitions	-
22R4244	DS4800 FlashCopy Activation	-
22R4245	DS4800 VolumeCopy Activation	-
22R4246	DS4800 Flash/VolumeCopy Activation	-
39M5715	DS4800 Integrated Backup for Databases (IBD) for Exchange	-
22R6623	DS4800 Model 80 IBD for Exchange	-
22R4247	DS4800 Enhanced Remote Mirror Activation	-
22R6621	DS4800 Model 80 Enhanced Remote Mirror Activation	-
22R4248	DS4800 FC/SATA Enclosure Intermix Option	-
23R0546	DS4800 Model 82 Cache Upgrade to 8 GB	1
23R0547	DS4800 Model 82 Cache Upgrade to 16 GB	1
23R0548	DS4800 Model 84 Cache Upgrade to 16 GB	1
26K7941	SW 4Gbps SFP Pair[2]	4
39M5696	1m LC-LC Fibre Channel Cable	-
39M5697	5m LC-LC Fibre Channel Cable	-
39M5698	25m LC-LC Fibre Channel Cable	-

Notes:
1. Licensed one per DS4800.
2. Option includes two 4Gbps SW SFPs.

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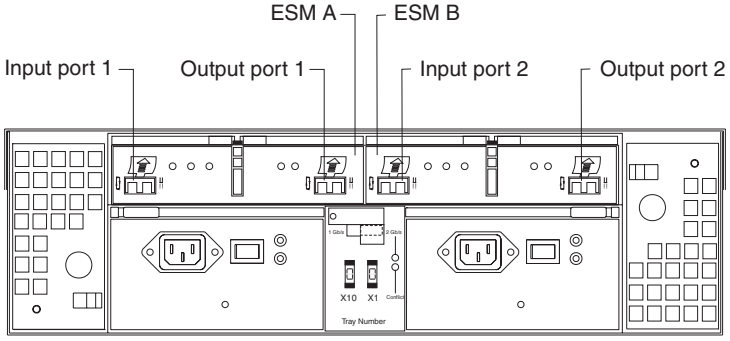
Chapter 48. TotalStorage DS4000 EXP100 storage expansion unit

Table 117. TotalStorage DS4000 EXP100 Storage Expansion Unit At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (TB)	Dimensions (W x D x H)	Form Factor	Max Cfg Wt	Power Supply Quantity (Std/Max) - Size
DS4000 EXP100 [1,2]	171010G	SATA	14/14	Y	5.6TB	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	40.2kg (57lbs)	2/2 - 390w
DS4000 EXP100 1XP [3]	17241XP	SATA	14/14	Y	5.6TB	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	40.2kg (57lbs)	2/2 - 390w
DS4000 EXP100 Express Model [1,2,4]	172410J	SATA	14/14	Y	5.6TB	481.8mm x 597.4mm x 132.3mm (18.97in x 23.52in x 5.21in)	Rack Drawer (3U)	40.2kg (57lbs)	2/2 - 390w

Notes:
1. Attachment to a supported Storage Server is required. This expansion unit does not attach directly to the server.
2. DS4000 EXP100 ships with the rail mounting kit, two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC 320-C14), and two U.S. power cords (IEC 320-C13 to NEMA 5-15P).
3. 1724-1XP provides the same expansion capabilities as the 1710-10U, but comes with a one-year warranty versus a three-year warranty.
4. DS4000 EXP100 Express Model includes four short-wave SFP modules and two 1 meter fiber optic cables.



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TotalStorage DS4000 EXP100 hard disk drive (HDD) options

Option Number	Description	Height	Bays Supported	Max Qty
FastT SATA HDDs				
39M4570	DS4000 SATA 400 GB/7200 DDM	SL	1 ... 14	14
23R0285	DS4000 SATA 400 GB/7200 DDM - 4 Pack	SL	1 ... 14	14

TotalStorage DS4000 EXP100 other options

Option Number	Description	Max Qty
19K1271	Short-wave SFP Module	4
39M5696	1m LC-LC Fibre Channel Cable	-
39M5697	5m LC-LC Fibre Channel Cable	-
39M5698	25m LC-LC Fibre Channel Cable	-
19K1250	1m LC-SC Fibre Channel Adapter Cable[1]	-

Notes:
1. Designed to connect a 1Gb device or cable to a 2Gb device or cable.

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Chapter 49. TotalStorage DS4000 EXP710 fibre channel storage expansion unit

Table 118. TotalStorage DS4000 EXP710 Fibre Channel Storage Expansion Unit At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (GB)	Dimensions (WxDxH)	Form Factor	Max Cfg Wt	Power Supply Quantity (Std/Max) - Size
DS4000 EXP710 [1,2]	174071G	Fibre Channel	14/14	Y	4.2TB	482mm x 597mm x 132mm (18.97in x 23.52in x 5.21 in)	Rack Drawer (3U)	44.47kg (98.2lbs)	2/2 - 390w
DS4000 EXP710 Express Model [1,2,3]	174071J	Fibre Channel	14/14	Y	4.2TB	482mm x 597mm x 132mm (18.97in x 23.52in x 5.21 in)	Rack Drawer (3U)	44.47kg (98.2lbs)	2/2 - 390w

Notes:
1. Attachment to a supported Storage Server is required. This expansion unit does not attach directly to the server.
2. DS4000 EXP710 accommodates up to four, optional, short-wave SFP modules. The unit ships with two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC320-C14).
3. DS4000 EXP710 Express Model includes four short-wave SFP modules and two 1 meter fiber optic cables.

Table 119. Additional Features

	1740-710
ESMs (std/max)	2/2[1]
Input Ports (std/max)	2/2
Output Ports (std/max)	2/2

Notes:
1. Ships standard with two ESMs, each providing one input port and one output port.

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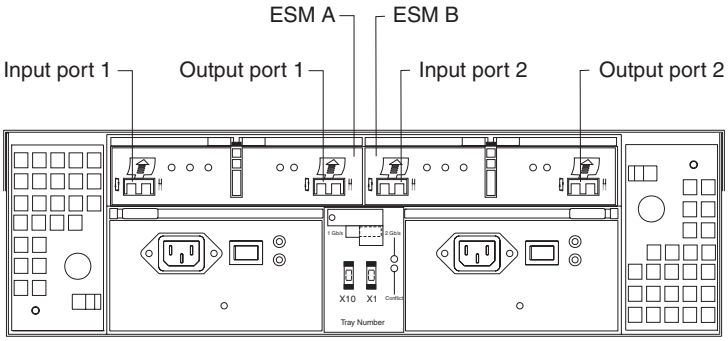

TotalStorage DS4000 EXP710 hard disk drive (HDD) options

Option Number	Description	Height	Bays Supported	Max Qty
06P5762	73.4GB 10K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
32P0765	146.8GB 10K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
73P8005	300GB 10K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
06P5772	36.4GB 15K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
32P0768	73.4GB 15K rpm 2Gbps Disk Module	SL	1 ... 14	14
73P8022	146.8GB 15K rpm 2Gbps FC Disk Module	SL	1 ... 14	14
22R5030	DS4000 73GB 10K FC HDD - 4 Pack	SL	1 ... 14	-
22R5031	DS4000 73GB 15K FC HDD - 4 Pack	SL	1 ... 14	-
22R5032	DS4000 146GB 10K FC HDD - 4 Pack	SL	1 ... 14	-
22R5033	DS4000 146GB 15K FC HDD - 4 Pack	SL	1 ... 14	-
22R5034	DS4000 300GB 10K FC HDD - 4 Pack	SL	1 ... 14	-

TotalStorage DS4000 EXP710 other options

Option Number	Description	Max Qty
19K1271	Short-wave SFP Module	4
39M5696	1m LC-LC Fibre Channel Cable	-
39M5697	5m LC-LC Fibre Channel Cable	-
39M5698	25m LC-LC Fibre Channel Cable	-
94G6667	4.3m, 100-120V, C13 to NEMA 5-15P (US) Line Cord	-
Note: A minimum of two fiber optic cables are required for attachment to DS4000 Disk Systems or to other DS4000 Expansion Units.		

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Chapter 50. TotalStorage DS4000 EXP810 storage expansion unit

Table 120. TotalStorage DS4000 EXP810 Fibre Channel Storage Expansion Unit At-A-Glance

Name	Part Number	Storage Type	HDD Bays (Std/Max)	Hot-Swap HDD Bays (Y/N)	Max Internal Storage Capacity (TB)	Dimensions (WxDxH)	Form Factor	Max Cfg Wt	Power Supply Quantity (Std/Max) - Size
DS4000 EXP810 [1, 2]	181281H	Fibre Channel[3]	16/16	Y	4.8TB	482mm x 559mm x 132mm (18.97in x 23.52in x 5.21 in)	Rack Drawer (3U)	38.56kg (85lbs)	2/2 - 450w

Notes:
1. Attachment to a supported Storage Server is required. This expansion unit does not attach directly to the server.
2. DS4000 EXP810 accommodates up to four, optional, short-wave SFP modules. The unit ships with two short-wave SFP modules and two 2.8m/9ft intra-rack power cords (IEC 320-C13 to IEC320-C14). If U.S. wall-outlet power cords are required, then order quantity two of PN 39Y7931.
3. Supports Enhanced Disk Drive Module (E-DDM) disks only. Insertion of unsupported disks will cause significant damage.

Table 121. Additional Features

	1812-81H
ESMs (std/max)	2/2[1]
Input Ports (std/max)	2/2
Output Ports (std/max)	2/2

Notes:
1. Ships standard with two ESMs, each providing one input port and one output port.

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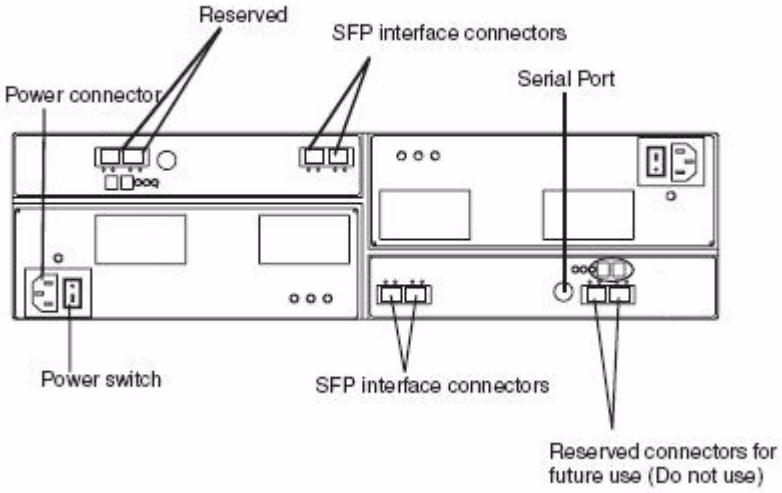

TotalStorage DS4000 EXP810 hard disk drive (HDD) options

Option Number	Description	Height	Bays Supported	Max Qty
39M4586	73.4GB 10K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
39M4590	146.8GB 10K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
39M4594	300GB 10K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
40K6800	36.4GB 15K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
40K6804	73.4GB 15K rpm 2Gbps FC E-DDM Disk Module	SL	1 ... 16	16
40K6808	146.8GB 15K rpm 2Gbps FC E-DDM Disk Module	SL	... 16	16
40K6812	4 Gbps FC, 36.4 GB/15K E-DDM Disk Module	SL	1 ... 16	16
40K6816	4 Gbps FC, 73.4 GB/15K E-DDM Disk Module	SL	1 ... 16	16
40K6820	4 Gbps FC, 146.8 GB/15K E-DDM Disk Module	SL	1 ... 16	16
39M4554	500 GB/7.2K SATA E-DDM	SL	1 ... 16	16

TotalStorage DS4000 EXP810 other options

Option Number	Description	Max Qty
26K7941	SW 4 Gbps SFP transceiver pair	4
39M5696	1m Fibre Optic Cable LC-LC	-
39M5697	5m Fibre Optic Cable LC-LC	-
39M5698	25m Fibre Optic Cable LC-LC	-
39Y7931	4.3m, 100-120V, C13 to NEMA 5-15P (US) Line Cord	2
Note: A minimum of two fiber optic cables are required for attachment to DS4000 Disk Systems or to other DS4000 Expansion Units.		

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Chapter 51. Additional fibre channel components

Table 122. IBM System Storage 10Q

Option Number	Description	Ports (Std/Max)	SFP Modules (Std)
691810X	IBM System Storage SAN10Q[1, 2, 3]	10/10	4
Related Options			
39R6523	IBM System Storage SAN10Q Rack Kit[4]		
39R6475	4-Gbps SW SFP Transceiver		

Notes:
1. Provides 10 ports in a 1/2-rack width, 1U high chassis. Ships standard with four short-wave SFP modules, serial cable and a rack power cord.
2. Supports short-wave connections only.
3. Entry level switch compatible with DS400 only.
4. Supports two L10 switches in a 1U rack space.

Table 123. IBM TotalStorage SAN16B-2 Express Model

Option Number	Description	Ports (Std/Max)	SFP Modules (Std)
200516B	IBM TotalStorage SAN16B-2 Express Model[1, 2]	8/16	8
Related Options			
22R5332	16B Express Model 4-Port Upgrade[3]		
22R4901	16B 4-Port Activation[4]		
22R4891	16B Advanced Security Activation		
22R4904	16B Fabric Watch		
23R1705	16B Extended Fabric Activation		
22R5460	16B Full Fabric Activation		
22R5469	16B Performance Bundle Activation		
22R4897	4 Gbps SW SFP Transceiver 4 Pack		
22R4902	4 Gbps SW SFP Transceiver		
19K1272	Long-wave SFP Module[5]		
22R0484	2 Gbps LW SFP Module 4 Pack		
23R1703	4 Gbps 4 km longwave SFP Transceiver		
23R1704	4 Gbps 4 km longwave SFP Transceiver 4 Pack		
23R1701	4 Gbps 10 km longwave SFP Transceiver		
23R1702	4 Gbps 10 km longwave SFP Transceiver 4 Pack		
22R0487	9 Micron Fibre Cable 31 m, singlemode, SC/LC		
22R0488	9 Micron Fibre Cable 31 m, singlemode, LC/LC		
22R0489	9 Micron Fibre Cable 2 m, singlemode, SC/LC		

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Notes:
1. Provides 16 ports in a 1U high chassis. Ships standard with eight short-wave 4 Gbps SFP modules, rack power cord and a rail kit.
2. Supports short-wave and long-wave connections.
3. Includes four 4GBps SW SFP transceivers and port activation for four ports.
4. Provides port activation only for four ports. One optional SFP transceiver is required per port.
5. Long-wave SFP Module operates at 2Gbps transfer rate.

Table 124. TotalStorage SAN32B-2 Express Model

Option Number	Description	Ports (Std/Max)	SFP Modules (Std)
200532B	IBM TotalStorage SAN32B-2 Express Model [1, 2]	16/32	16
Related Options			
22R5128	32B Fabric Manager v4 Max Domains		
22R5129	32B Remote Switch Activation		
22R4894	32B Extended Fabric Activation		
22R4895	32B Advanced Security Activation		
22R4896	32 Performance Bundle		
22R5505	32B 8-Port Activation[3]		
22R5078	32B 8-Port Upgrade Option[4]		
22R4897	4 Gbps SW SFP Transceiver 4 Pack		
22R4902	4 Gbps SW SFP Transceiver		
19K1272	Long-wave SFP Module[5]		
23R1703	4 Gbps 4 km longwave SFP Transceiver		
23R1704	4 Gbps 4 km longwave SFP Transceiver 4 Pack		
23R1701	4 Gbps 10 km longwave SFP Transceiver		
23R1702	4 Gbps 10 km longwave SFP Transceiver 4 Pack		

Notes:
1. Provides 32 ports in a 1U high chassis. Ships standard with sixteen short-wave 4 Gbps SFP modules, rack power cord and a rail kit.
2. Supports short-wave and long-wave connections.
3. Provides port activation only. Does not include SFP Transceivers.
4. Provides activation for 8 ports and eight 4 Gbps shortwave SFP transceivers.
5. Long-wave SFP Module operates at 2Gbps transfer rate.

Table 125. IBM TotalStorage SAN16M-2 Express Model

Option Number	Description	Ports (Std/Max)	SFP Modules (Std)
202616E	IBM TotalStorage SAN16M-2 Express Model[1,2,3]	8/16	8
Related Options			
22R5892	SAN16M-2 Express Shelf Kit[4]		
22R5424	SAN16M-2 Express Optional Hot-Swap Redundant Power Supply		
22R5893	SAN16M-2 Express Element Manager		
22R5895	SAN16M-2 Express SANtegrity Enhanced		
22R5897	SAN16M-2 Express Open Trunking (FCP Support Only)		
22R5888	4-Port FlexPort Expansion Kit[5]		
39M5696	1M L-LC Fibre Channel Cable		
39M5697	5M LC-LC Fibre Channel Cable		
39M5698	25M LC-LC Fibre Channel Cable		
19K1250	LC-SC Fibre Channel Adapter Cable		

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Table 125. IBM TotalStorage SAN16M-2 Express Model (continued)

Option Number	Description	Ports (Std/Max)	SFP Modules (Std)
23R1490	LW 4 Gbps 4 km SFP Transceiver		
23R1492	LW 4 Gbps 10 km SFP Transceiver		

Notes:
1. Provides up to 16 ports in a half-rack width chassis. Ships standard with eight short-wave 4 Gbps SFP modules, and US power cord.
2. Currently supports short-wave connections only.
3. Includes eight 4GBps SW SFP transceivers and port activation for eight ports.
4. Rack shelf supports up to two SAN16M-2 Express Models.
5. Includes four 4GBps SW SFPs and port activation for four ports.

Table 126. IBM TotalStorage SAN32M-2 Express

Option Number	Description	Ports (Std/Max)	SFP Modules (Std)
202632E	IBM TotalStorage SAN32M-2 Express[1,2,3]	16/32	16
Related Options			
22R5907	SAN32M-2 Express Element Manager		
22R5909	SAN32M-2 Express SANtegrity Enhanced		
22R5911	SAN32M-2 Express Open Trunking (FCP Support Only)		
39M5696	1M LC-LC Fibre Channel Cable		
39M5697	5M LC-LC Fibre Channel Cable		
39M5698	25M LC-LC Fibre Channel Cable		
19K1250	LC-SC Fibre Channel Adapter Cable		
22R5906	8-Port FlexPort Expansion Kit[4]		
19K1272	Long-wave SFP Module[5]		
23R1490	LW 4 Gbps 4 km SFP Transceiver		
23R1492	LW 4 Gbps 10 km SFP Transceiver		

Notes:
1. Provides 32 ports in a 1U high chassis. Ships standard with sixteen short-wave 4 Gbps SFP modules, two rack power cords, two US power cords, and a rail kit.
2. Supports short-wave and long-wave connections.
3. Includes sixteen 4GBps SW SFPs and port activation for 16 ports.
4. Includes eight 4GBps SW SFPs and port activation for eight ports.
5. Long-wave SFP Module operates at 2Gbps transfer rate.

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Chapter 52. External storage configuration examples

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Table 127. Cable Group Legend

Cable Group A (0.8mm to 0.8mm)	
03K9310	Netfinity 2m Ultra2 SCSI Cable
03K9311	Netfinity 4.2m Ultra2 SCSI Cable
Cable Group SW (short-wave)	
19K1247	1m LC-LC Fibre Channel Cable
19K1248	5m LC-LC Fibre Channel Cable
19K1249	25m LC-LC Fibre Channel Cable
Cable Group LW (long-wave)[1]	
-	Customer Supplied

Notes:
1. Customer-supplied cables of longer lengths can be used. Short-wave supports up to 500m. Long-wave supports up to 10km.

The illustration below shows what a typical solution might look like in terms of where short-wave and long-wave cables would be used. Actual implementation may vary based on individual hardware.

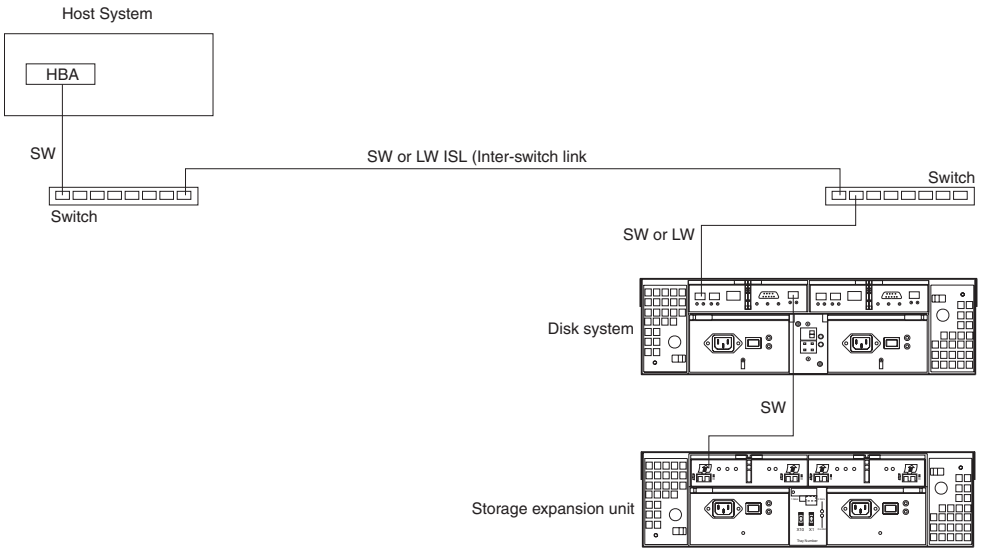

Figure 97. Typical short-wave and long-wave cabling usage

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The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

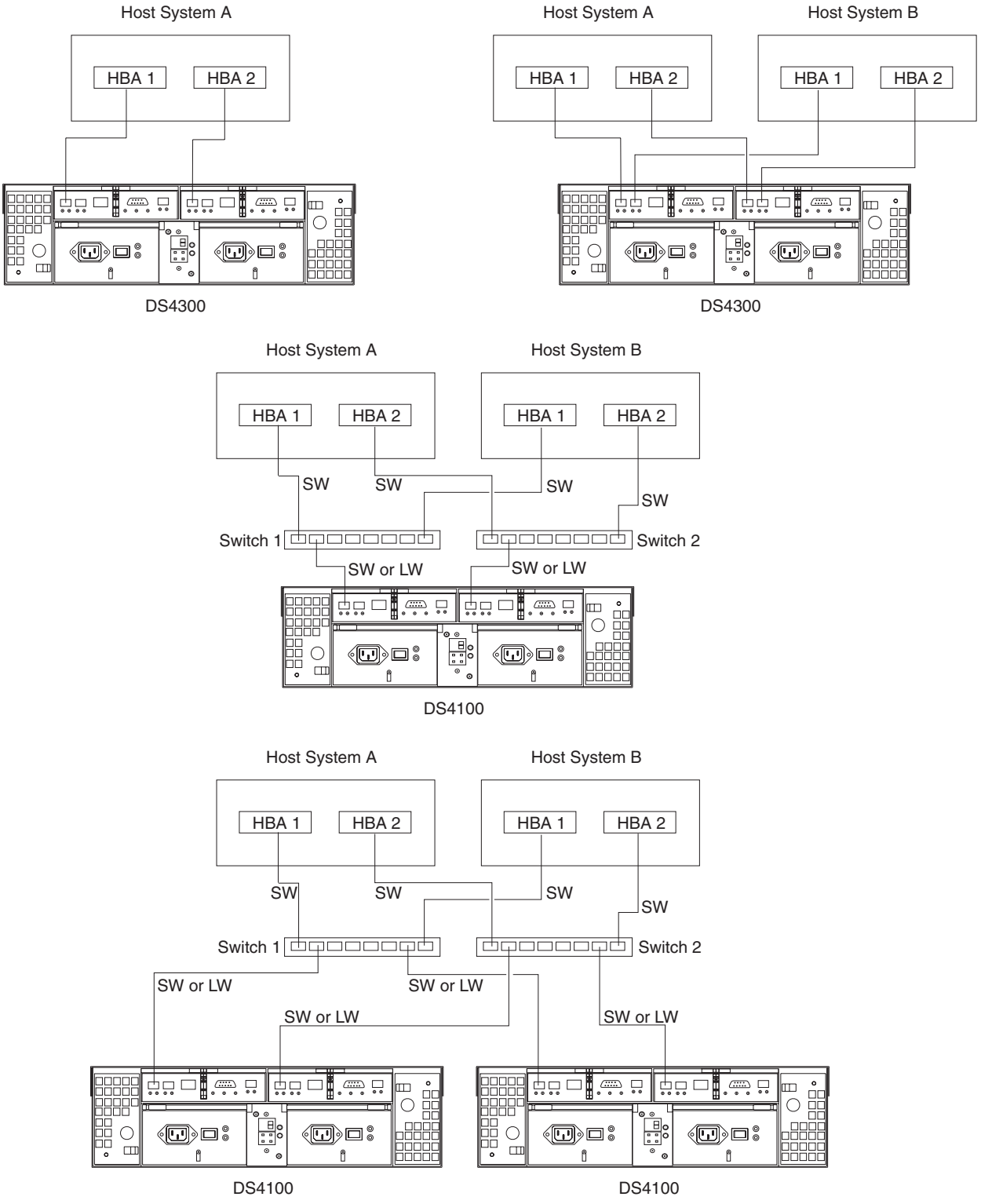

Figure 98. DS4100 and DS4300 Host Attach Examples

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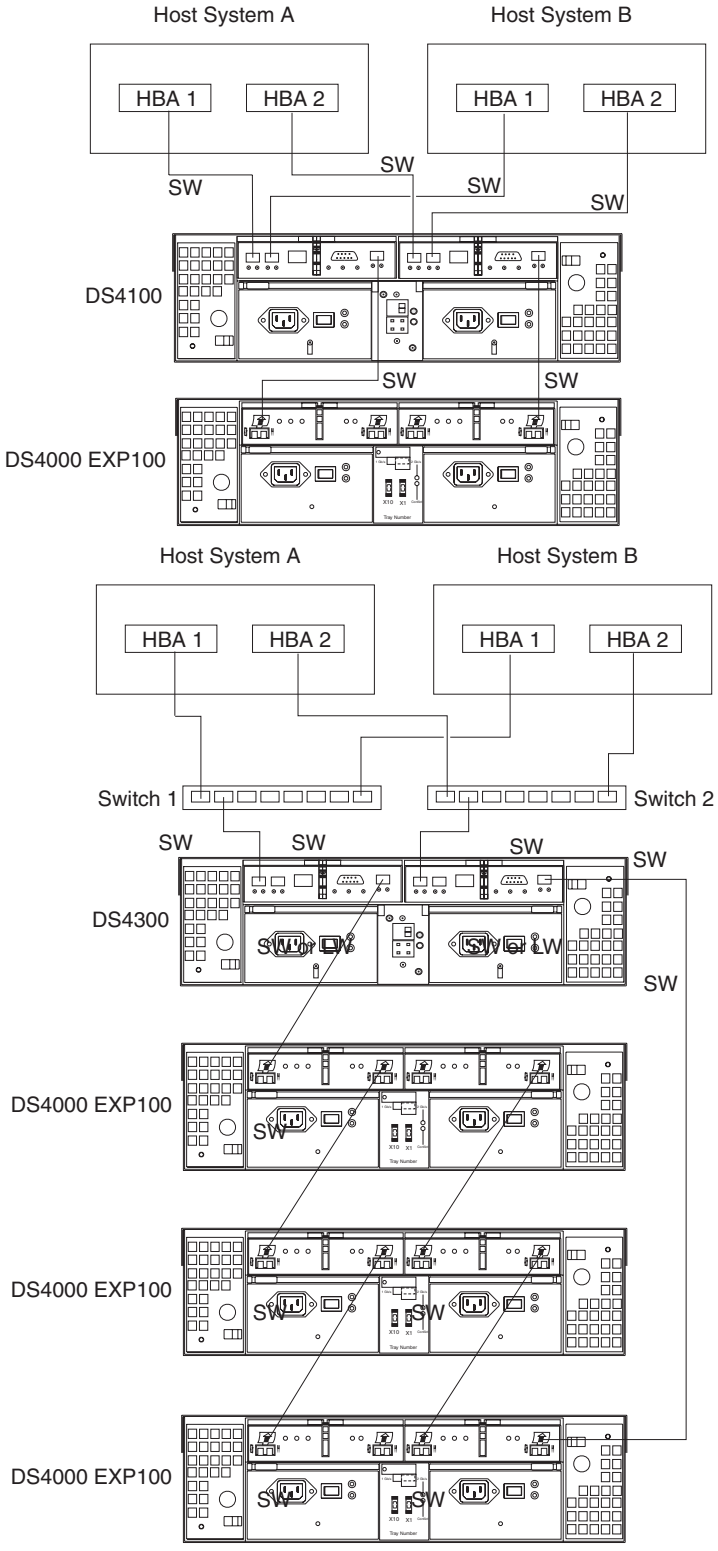

Figure 99. DS4100 and DS4300 Drive Attach Examples

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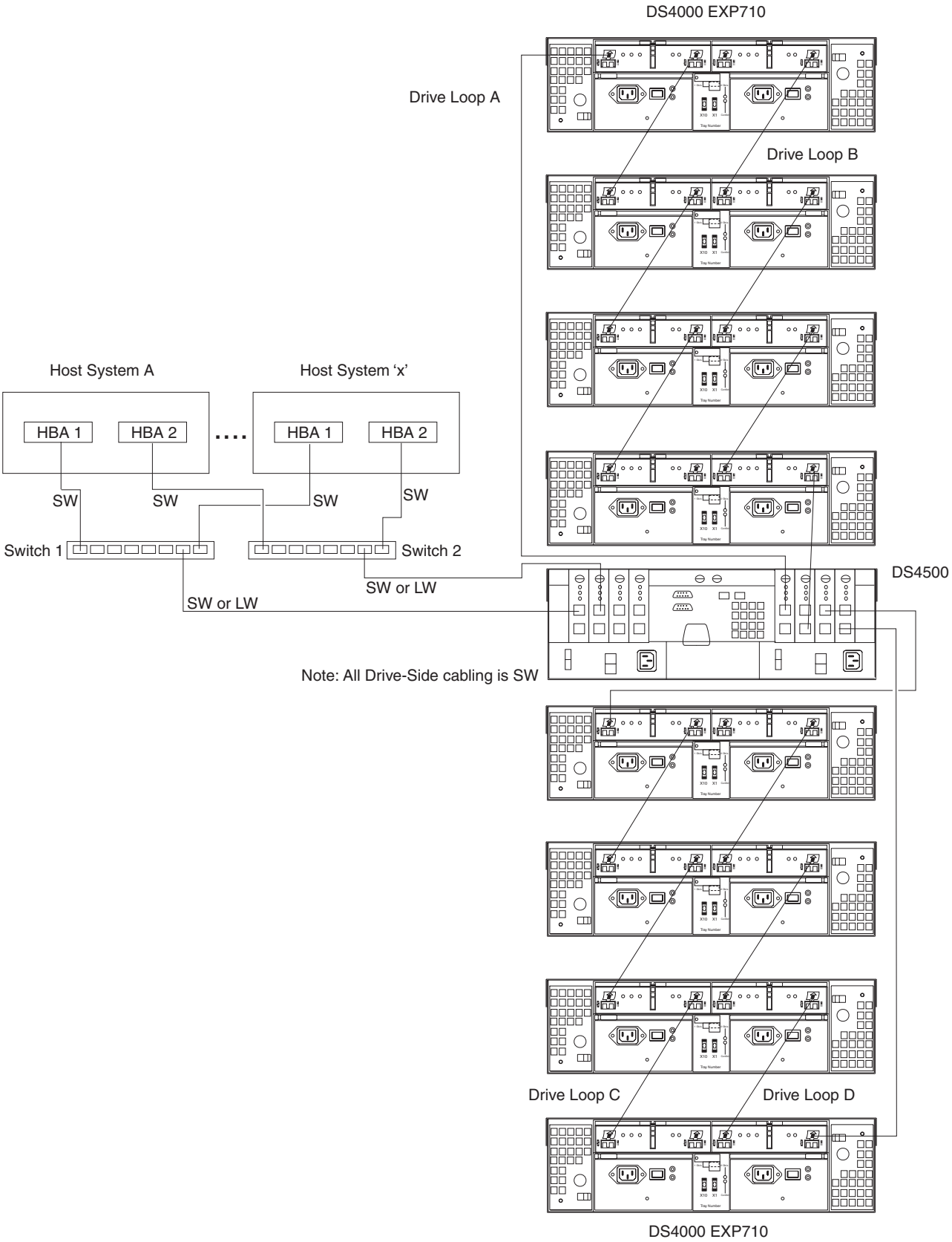

Figure 100. DS4500 Host and Drive Attach Examples

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Chapter 53. Rack cabinets and options

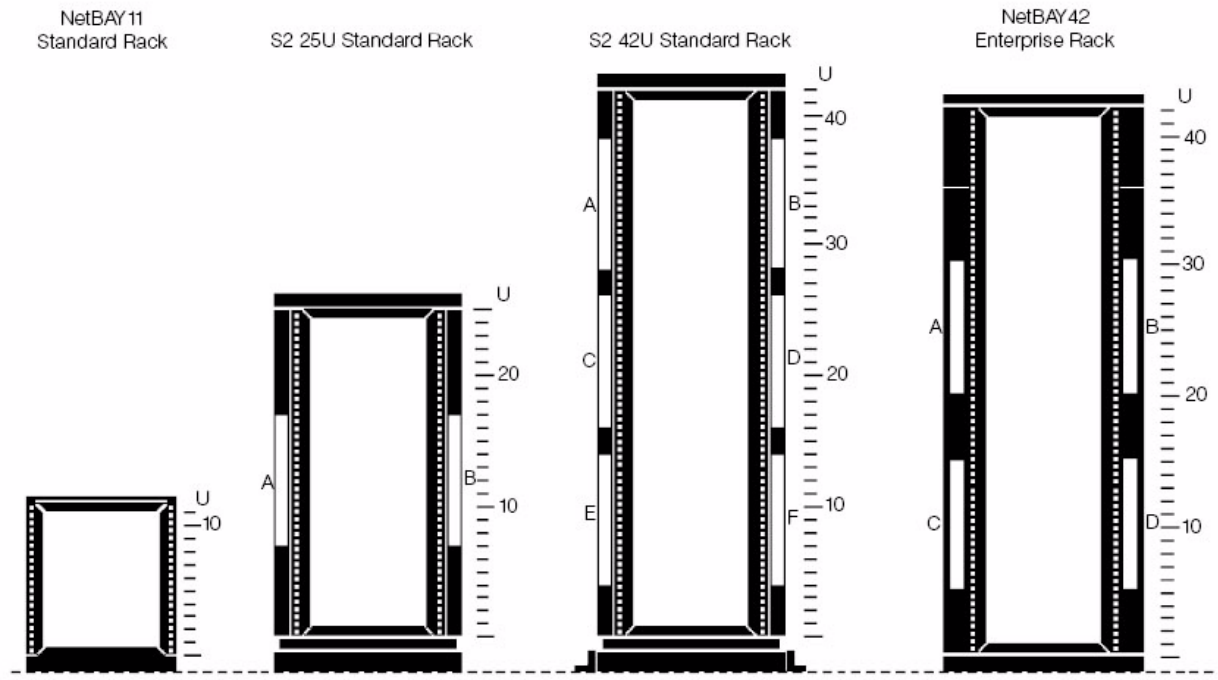

Table 128. Rack Cabinets

	NetBay11 Standard Rack	S2 25U Standard Rack	S2 42U Standard Rack		NetBay42 Enterprise Rack	
Machine Type Model	**93061RX**	**93072RX**	**93074RX**	**93074XX**	**93084RX**	**93084XX**
EIA Capacity[1]	11U	25U	42U	42U	42U	42U
Sidewall Compartments	0	2	6	6	4	4
Front Stabilizers	Std	Std	Std	Std	Std	Std
Side Stabilizers	NR	NR	Std[2]	NR	NR	NR
Casters	Std	Std	Std	Std	Std	Std
Leveling Feet	NA	Std	Std	Std	Std	Std
Side Covers	Std	Std	Std	NR	Std	NR
Rack Attachment Kit[3]	NA	NA	NR	Std	NR	Std
Glass Front Door	NA	NA	NA	NA	NA	NA
Perforated Front Door	Std	Std	Std	Std	Std	Std
Perforated Rear Door	NA	Std	Std	Std	Std	Std
Height (mm/in)[4]	611 /24.1	1344/53	1999/78.7	1999/78.7	2020 /79.5	2020 /79.5
Width (mm/in)	518/20.4	605/23.8	605/23.8	600/23.6	648/25.5	648/25.5
Depth (mm/in)	873/34.4	1000/39.4	1000/39.4	1000/39.4	1105/43.5	1105/43.5

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Table 128. Rack Cabinets

	NetBay11 Standard Rack	S2 25U Standard Rack	S2 42U Standard Rack		NetBay42 Enterprise Rack	
Machine Type Model	**93061RX**	**93072RX**	**93074RX**	**93074XX**	**93084RX**	**93084XX**
Empty Weight (kg/lb)	36/79	100/220	125/276	94/207	261/575	234/516
Max Load (kg/lb)	182/401	567/1250	907/2000	907/2000	932/2055	932/2055
Total Weight (kg/lb)	218/481	667/1470	1032/2276	1032/2276	1193/2630	1193/2630
Shippable Loaded[5]	Yes	Yes	No	No	Yes	Yes
Note: NR - Not Required; NA - Not Available; 1U - 1.75in (44.45mm)						

Notes:
1. Conforms to EIA 310 - D Standard 19in rack specification for a Type A cabinet with universal hole spacing.
2. Side stabilizer brackets are included to bolt the cabinet to the floor. They are needed when a single, standalone cabinet is lightly loaded. See the installation instructions for additional information.
3. Required to attach racks together to make a suite.
4. Minimum clearance to the ceiling is 305mm / 12in.
5. 'Shippable loaded' means the cabinet is capable of being transported with equipment installed. Required packaging is provided. The integrator/assembler is responsible for assuring the stability of the shipped configuration. Rack Integration Services are available from IBM.

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Server system rack alternatives

Table 129. System Rack Alternatives

	Conversion Kits						Standard Racks				Enterprise Racks	
	09N4300 4Ux20D Tower-to-Rack Kit	26K6122 4Ux24D Tower-to-Rack Kit III	39R9361 5Ux20D Tower-to-Rack Kit II	59P4211 5Ux24D Tower-to-Rack Kit III	13N0956 5U Extended Depth Tower-to-Rack Kit	32R0719 7Ux26D Tower-to-Rack Kit II	9306-110 NetBAY11	9307-2SX S2 25U	9307-4SX S2 42U	9307-4EX S2 42U	9308-42S NetBAY42ER	9308-42E NetBAY42EX
Servers												
xSeries 206[1]	X						X	X	X	X	X	X
xSeries 206m[1]			X				X	X	X	X	X	X
xSeries 226[1]		X					X	X	X	X	X	X
xSeries 236[1]					X		X	X	X	X	X	X
xSeries 255						X	X	X	X	X	X	X
xSeries 260						X	X	X	X	X	X	X
xSeries 306[2]							X	X	X	X	X	X
xSeries 336[2]							X	X	X	X	X	X
xSeries 346							X	X	X	X	X	X
xSeries 365							X	X	X	X	X	X
xSeries 366							X	X	X	X	X	X
xSeries 460							X	X	X	X	X	X
BladeCenter							X	X	X	X	X	X
eServer 326							X	X	X	X	X	X

Notes:
1. Rack installation requires appropriate conversion kit.
2. If installed in older IBM racks, the server should not be installed behind a glass door that blocks air flow. Remove the glass door or replace with an optional perforated door. To order a rack extension kit for withdrawn IBM racks, visit the Options Continuation Program Website. See the 'Information Sources' section for the URL.

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Description	Machine Type / Model	Size (U)[2]	Depth (in)	Approx Weight[3] (lbs)[3]	Power (Watts) Typical/Max	Number of P/S & Line Cords (Basic/Max)[4]	Standard Power Cords[1]					
							6ft NEMA 5-15P P/N 6952301	9ft NEMA 5-15P P/N 6952300	9ft NEMA 6-15P P/N 1838574	9ft IEC 320-C13/C14 P/N 36L8886	8ft IEC 320-C19/C20 P/N 00N7701	Y-cable 2xC13/C14 P/N 25R2567
Server System Units:												
x206[5]	8482	4	19	46	340/485	1/1	1					
x226	8648	4	26	57	495/707	1/1	1					
x226 w/redundant power	8648	4	26	57	480/685	2/2	2					
x236	8841	5	24	101	625/893	1/2	1					
x255[5]	8685	7	25	120	530/1000	2/2[6]		2		2		
x260 w/ two power supplies	8865	7	28	129	680/970	2/3		2		2		
x260 w/ three power supplies	8865	7	28	160	1280/1840	3/3		3		3		
x306[7]	8836	1	20	28	300/430	1/1		1				
x336	8837	1	26	32	385/550	1/2				1		
x336 w/redundant power	8837	1	26	34	385/550	2/2				1		1
x346	8840	2	28	62	580/830	1/2		1		1		
x366	8863	3	28	86	1200/1700	2/2				2		
x445[8]	8687	4	28	120	800/950	2/2			2	2		
x455	8855	4	28	120	600/700	2/2				2		
x460	8872	3	28	85	1200/1700	2/2						
e326	8848	1	26	32	400/587	1/1		1		1		
BladeCenter w/2 2000W power supplies	8677	7	28	150	1800/2650	2/2					2	
BladeCenter w/4 2000W power supplies	8677	7	28	246	3700/5300	4/4					4	
I/O Units:												
-	-	-	-	-	-	-	-	-	-	-	-	-

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IBM Rack-Mounted Units

Description	Machine Type / Model	Size (U)[2]	Depth (in)	Approx Weight[3] (lbs)[3]	Power (Watts) Typical/Max	Number of P/S & Line Cords (Basic/Max)[4]	Standard Power Cords[1]					
							6ft NEMA 5-15P P/N 6952301	9ft NEMA 5-15P P/N 6952300	9ft NEMA 6-15P P/N 1838574	9ft IEC 320-C13/C14 P/N 36L8886	8ft IEC 320-C19/C20 P/N 00N7701	Y-cable 2xC13/C14 P/N 25R2567
Storage Units:												
EXP400	17331RU	3	22	85	352/440	2/2		2		2		
DS300	1701xxx	3	23	90	391/558	1/2				1		
DS400	1700xxx	3	23	90	391/558	2/2				2		
DS4100	1724100	3	22	99	273/390	2/2				2		
DS4300	172260U	3	24	102	275/390	2/2		2		2		
DS4400	17421RU	4	24	85	140/200	2/2		2		2		
DS4500	174290U	4	24	85	140/200	2/2		2		2		
DS4000 EXP100	171010U	3	23.5	89	245/350	2/2		2		2		
DS4000 EXP710	1740710	3	23	101	273/390	2/2		2		2		
FC Switch 8-port	3534F08	1	10	12	85	1/1						
FC Switch 16-port	2005H16	1	12	12	200	2/2						
Tape Components:												
NetBAY 1U Tape Enclosure	45591UX	1	20	16 [3]	100	1/1				1		
NetBAY 4U Tape Enclosure	45594UX	4	18	25[3]	300	1/1		1		1		
SDLT/LTO Modular Tape Library	4560SLX	5	31	70	300	1/1				1		

Notes:
1. Optional rack power cords: P/N 94G6667 - 14ft NEMA 5-15P; P/N 94G7448 - 14ft IEC 320-C14.
2. 1U = 1.75in (44.45mm).
3. Weight equals maximum configuration, except for the 4559 Tape Enclosures where it is the weight without tape drives.
4. Power inlets are IEC 320-C14, except for the BladeCenter with 2000W power supplies and the x365, which have IEC 320-C20 inlets.
5. Rack installation requires appropriate tower-to-rack conversion kit.
6. Additional power cords are not required. This power supply option shares use of line cords provided with the base system. Should be ordered in pairs to maintain redundancy.
7. If installed in older IBM racks, the server should not be installed behind a glass door that blocks air flow. Remove the glass door or replace with an optional perforated door. To order a rack extension kit for withdrawn IBM racks, visit the Options Continuation Program Website at www.pc.ibm.com/ww/ocp.
8. Internal power supply logic limits low voltage (100-127 VAC) to 550w per power supply. Thus, configurations requiring more power are not redundant for low voltage installations, e.g., configurations with more than two processors.

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General rack placement rules and other information:

- Locate heaviest components at the bottom of the rack (i.e., UPS, then servers or storage, etc.).
- Do not extend more than one component on side rails at a time.
- Maximum of three UPSs (including no more than two APC 5000 UPSs) per rack.
- Utilize sidewall compartments for mounting PDUs and console switches prior to using EIA space.
- When mounting components in a rack, consider user and service requirements.
- When selecting length of power, console and storage cables, consider extension of cable management arms and overall cable routing.
- BTUs = Watts x 3.41.

Power Supply Options

			Standard Power Cords[1]							
			IEC 320-C13					IEC 320-C19		
Power Supply	Part Number	Usable with	6ft NEMA 5-15P 6952301	9ft NEMA 5-15P 6952300	9ft IEC 320-C14 36L8886	Y-cable 2xC13/C14 25R2567	9ft IEC 320-C20 74P4430	14ft IEC 320-C14 12J5995	8.2ft IEC 320-C20 00N7701	8.2ft NEMA 5-15P 12J5112
370w	31P6133	x255[2]								
585w	90P5280	x336				1				
625w	26K5097	x346								
670w	26K9560	x236								
1300w	13M7413	x366			1					
2000w	26K4816	BladeCenter[3]							2	
DS300 Upgrade	13N1775	1701-1RL			1					

Notes:

1. Optional rack power cords: P/N 94G6667 - 14ft NEMA 5-15P; P/N 94G7448 - 14ft IEC 320-C14.
2. Additional power cords are not required. This power supply option shares use of line cords provided with the base system. Should be ordered in pairs to maintain redundancy.
3. Refer to Appendix BladeCenter Power Upgrade Guidelines for important information that will help determine when a BladeCenter power module upgrade is necessary.

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Rack Options

Option Number	Description	Information
Console Support:		
28L4707	Netfinity Rack Keyboard Tray	Supports keyboards in racks, also used with Flat Panel Monitor Rack Mount Kit II
94G7444	Monitor Compartment	Size depends on monitor, space for CRT or Flat Panel Monitor and a console switch
17231UX	1U 17in Flat Panel Monitor Console Kit with Travel Keyboard (US)	1U, built-in 17in Flat Panel Monitor (17in viewable image), includes Travel Keyboard - US English [P/N 73P3144]
17231NX	1U 17in Flat Panel Monitor Console Kit without keyboard	1U, built-in 17in Flat Panel Monitor (17in viewable image), space for Travel Keyboard
17232UX	2U 15in Flat Panel Monitor Console Kit with Travel Keyboard (US)	2U, built-in 15in Flat Panel Monitor (15in viewable image), includes Travel Keyboard - US English [P/N 73P3144]
17232NX	2U 15in Flat Panel Monitor Console Kit without keyboard	2U, built-in 15in Flat Panel Monitor (15in viewable image), space for Travel Keyboard
09N4290	NetBAY 1x4 Console Switch	1U, mounts in sidewall compartments, EIA space or Monitor Compartment; supports one to four servers, one console
09N4291	NetBAY 2x8 Console Switch	1U, mounts in sidewall compartments, EIA space or Monitor Compartment; supports one to eight servers, two consoles (only one console when installed in Monitor Compartment)
09N4293	Console Cable Set - 7ft	Connects servers to console switch
94G7447	Console Cable Set - 12ft	Connects servers to console switch
17351LX	IBM 1x8 Console Switch	1U enhanced KVM console switch, mounts in sidewall compartments, EIA space, or behind 1U Console Kit; supports one to 64 servers, one local console
17352LX	IBM 2x16 Console Switch	1U enhanced KVM console switch, mounts in sidewall compartments, EIA space, or behind 1U Console Kit; supports one to 64 servers, two local consoles
31R3130	3m Console Switch Cable (PS2)	Connects servers with PS/2 K-V-M ports to the enhanced KVM console switches
31R3132	3m Console Switch Cable (USB)	Connects servers with USB and VGA K-V-M ports to the enhanced KVM console switches
1735L04	Local Console Manager	1U, mounts in sidewall compartments, EIA space, or behind 1U Console Kit; supports one to 64 servers, one local console
1735R16	Remote Console Manager	1U, mounts in sidewall compartments or EIA space; supports one to 256 servers, one local console and two remote consoles
32P1636	Short KVM Conversion Option	Converts the console signals of servers with PS/2 and VGA console ports and without cable management arms (not on slides) so they can be chained to connect to a Local or Remote Console Manager using Cat5 cable
32P1652	Long KVM Conversion Option	Converts the console signals of servers with PS/2 and VGA console ports and cable management arms (on slides) so they can be chained to connect to a Local or Remote Console Manager using Cat5 cable

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Option Number	Description	Information
73P5832	USB Conversion Option	Converts the console signals of servers with USB and VGA console ports and cable management arms (on slides) so they can be chained to connect to a Local or Remote Console Manager using Cat5 cable
32P1637	C2T Conversion Option	Converts the console signals of a chain of C2T-capable servers so they can be connected to a Local or Remote Console Manager using Cat5 cable
Power Distribution Support:		
32P1761	DPI 100-127 PDU with Fixed NEMA L5-15P line cord	1U, 100-127v, 12a, single-phase, mounts in sidewall compartment or EIA space, six NEMA 5-15R outlets, requires one L5-15R wall receptacle
32P1736	DPI Universal Rack PDU with NEMA L5-20P and L6-20P (US line cords)	1U, 100-240v, 15a, single-phase, mounts in sidewall compartment or EIA space, seven IEC 320-C13 outlets, requires one NEMA L5-20R or L6-20R wall receptacle
32P1751	DPI 30a/125v Front-end PDU with NEMA L5-30P	1U, 100-127v, 24a, single-phase, mounts in sidewall compartment or EIA space, three IEC 320-C19 outlets, requires one NEMA L5-30R wall receptacle
32P1766	DPI 30a/208v Front-end PDU with NEMA L6-30P	1U, 200-208v, 24a, single-phase, mounts in sidewall compartment or EIA space, three IEC 320-C19 outlets, requires one NEMA L6-30R wall receptacle
32P1767	DPI 60a/208v Front-end PDU with IEC 309 2P+Gnd	1U, 200-208v, 48a, single-phase, mounts in sidewall compartment or EIA space, three IEC 320-C19 outlets, requires one 60a IEC 309 2P+G wall receptacle
26K4246	DPI Single-phase 30a/208v C13 Enterprise PDU (US)	1U, 200-208v, 24a, single-phase, mounts in sidewall compartment or EIA space, twelve IEC 320-C13 outlets, requires one NEMA L6-30R wall receptacle
26K4242	DPI Single-phase 60a/208v C13 Enterprise PDU (US)	1U, 200-208v, 48a, single-phase, mounts in sidewall compartment or EIA space, twelve IEC 320-C13 outlets, requires one 60a IEC 309 2P+G wall receptacle
26K4244	DPI Three-phase 60a/208v C13 Enterprise PDU (US)	1U, 200-208v, three-phase, mounts in sidewall compartment or EIA space, twelve IEC 320-C13 outlets in three groups of four, 28a per group, requires one 60a IEC 309 3P+G (delta) wall receptacle
26K4256	DPI Single-phase 60a/208v C19 Enterprise PDU (US)	1U, 200-208v, 48a, single-phase, mounts in sidewall compartment or EIA space, six IEC 320-C19 outlets, requires one 60a IEC 309 2P+G wall receptacle
26K4258	DPI Three-phase 60a/208v C19 Enterprise PDU (US)	1U, 200-208v, three-phase, mounts in sidewall compartment or EIA space, six IEC 320-C19 outlets in three groups of two, 28a per group, requires one 60a IEC 309 3P+G (delta) wall receptacle
73P5855	DPI Single-phase 60a/208v High Density PDU	1U, 200-208v, 48a, single-phase, mounts in sidewall compartment or EIA space, twelve 320-C19 outlets, requires one 60a IEC 309 2P+G wall receptacle
73P5847	DPI Three-phase 60a/208v High Density PDU	1U, 200-208v, mounts in sidewall compartment or EIA space, twelve 320-C19 outlets in three groups of four, 28a per group, requires one 60a IEC 309 3P+G wall receptacle
32P1020	APC 2U Smart-UPS 1400RMB	2U, 120v, 9.5a, six NEMA 5-15R outlets, requires one NEMA L5-15R wall receptacle

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Rack Options

Option Number	Description	Information
2130R30	UPS3000XLV (US)	2U, 120v, 24a, six IEC C13 outlets, 1 NEMA L5-20R outlet, includes L5-20P to L5-15R adapter, requires one NEMA L5-30R wall receptacle
2130R31	UPS3000XHV (US)	2U, 200-240v, 14.25a, seven IEC C13 outlets, 1 IEC C19 outlet, requires one NEMA L6-20R wall receptacle
32P1692	UPS Extend Run Battery Pack (2U)	2U, up to four may be attached to the UPS3000XLV or XHV to extend run time when using the batteries
21306RX	UPS7500XHV (US)	6U, 200-240v, 38a, four IEC C19 outlets, requires electrician to wire to terminal block to single phase 50A wall receptacle
21308RX	UPS10000XHV (US)	6U, 200-240v, 50a, four IEC C19 outlets, requires electrician to wire to terminal block to single phase 70A wall receptacle
25R5582	UPS Extend Run Battery Pack (3U)	3U, up to four may be attached to the UPS7500XHV or UPS10000XHV to extend run time when using the batteries
94G6667	Rack Power Cable - C13/NEMA 5-15P	IEC 320-C13 to NEMA 5-15P (14ft)
94G7448	Rack Power Cable - C13/C14	IEC 320-C13 to IEC 320-C14 (14ft)
39Y7938	Rack Power Cable - C13/C20	IEC 320-C13 to IEC 320-C20 (2.8m)
90P4849	Rack Power Cable - C19/C20	IEC 320-C19 to IEC 320-C20 (2.5m)
Mechanical Options:		
25R5559	1U Quick Install Filler Panel Kit	Consists of five 1U blank filler panels
25R5560	3U Quick Install Filler Panel Kit	Consists of five 3U blank filler panels
94G7442	Fixed Shelf	Supports up to 100lbs

	9306-110 (inches)	9307-xxx (inches)	9308-xxx (inches)	Description
Box Footprint				
A	20.4	23.6	25.5	Width of rack
B	34.4	39.4	43.5	Depth of rack (not including front stabilizer)
C	21	24/12.5	26	Front/rear door clearance (when required)
Operational Clearance				
D	24.4	27.5	29.5	Width of Operational Clearance area
E	74.4	93.4	110	Depth of Operational Clearance area
F	2	2	2	Left/Right sides of rack to Operational Clearance area
G	30	36	36	Front of rack to Operational Clearance area
H	10	24	26	Rear of rack to Operational Clearance area
Service Clearance				
I	26	95.6	97.5	Width of Service Clearance area
J	78.3	129.4	133.5	Depth of Service Clearance area

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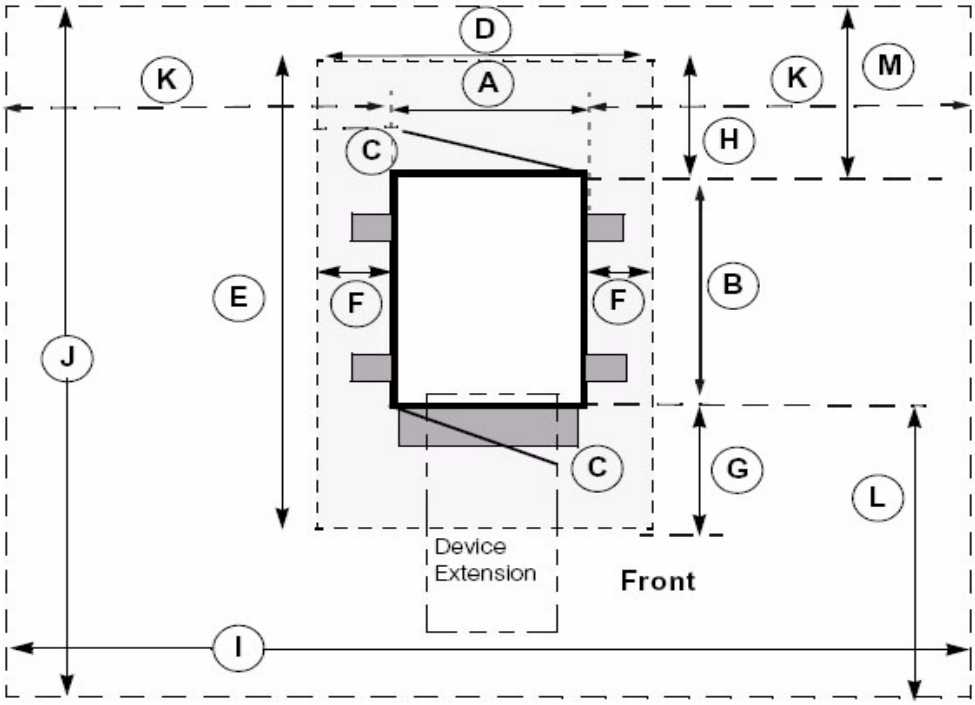
	9306-110 (inches)	9307-xxx (inches)	9308-xxx (inches)	Description
K	2.8	36	36	Left/Right sides of rack to Service Clearance area
L	36	60	60	Front of rack to Service Clearance area
M	30	30	30	Rear of rack to Service Clearance area



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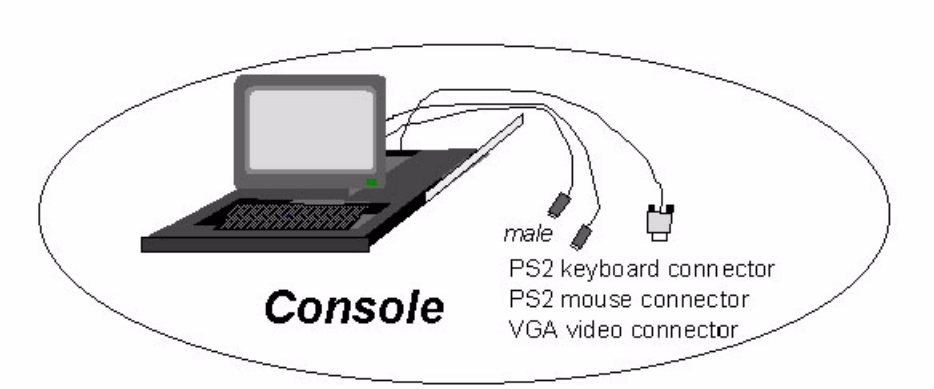
Chapter 54. Rack console options

A console consisting of a keyboard, monitor and pointing device is required by each server for system maintenance and support. The console may be local or remote and may be dedicated to a single server or shared across a large array of servers, which requires the use of one or more console switching devices.

Flat panel monitor console kits



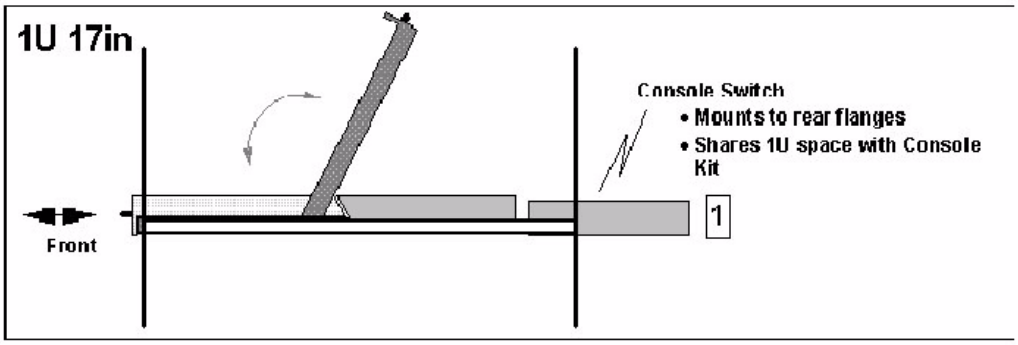


Figure 101. 1U 17in Flat Panel Monitor Console Kit

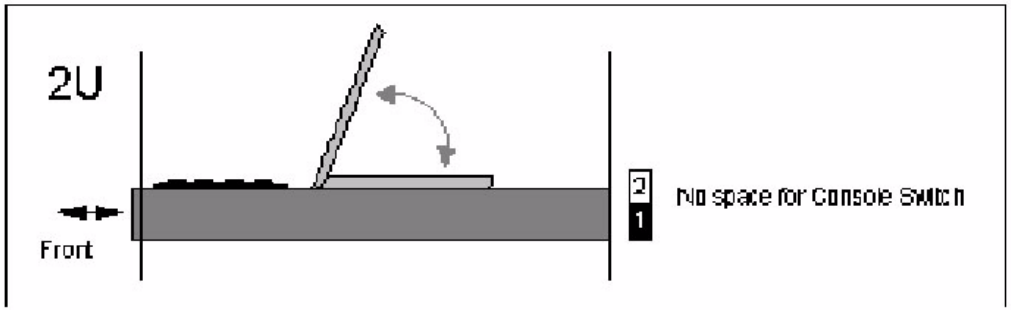


Figure 102. 2U 15in Flat Panel Monitor Console Kit

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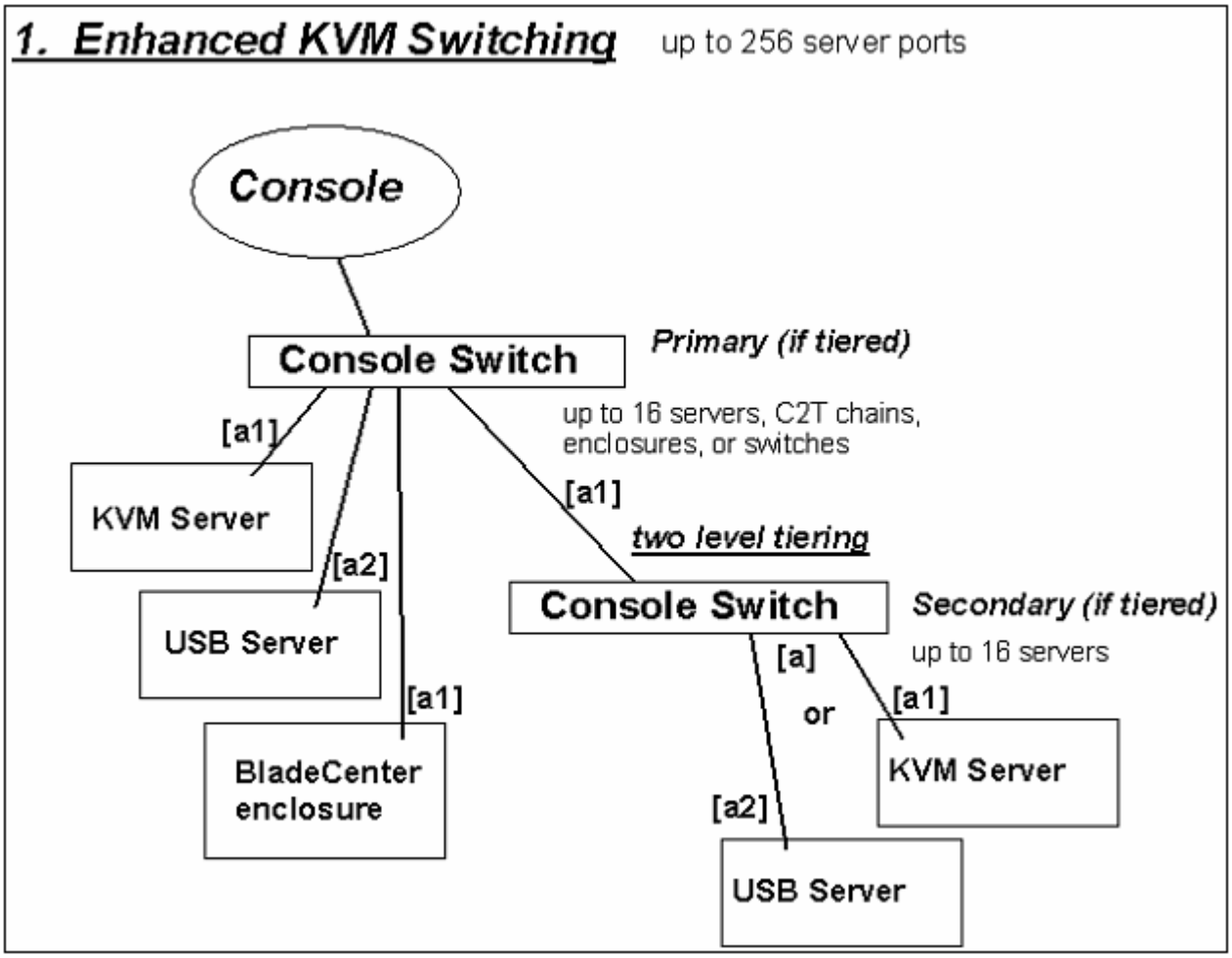
Multi-server console switching



Refer to the cable labeling key in the Cable Options table appearing later in this section.

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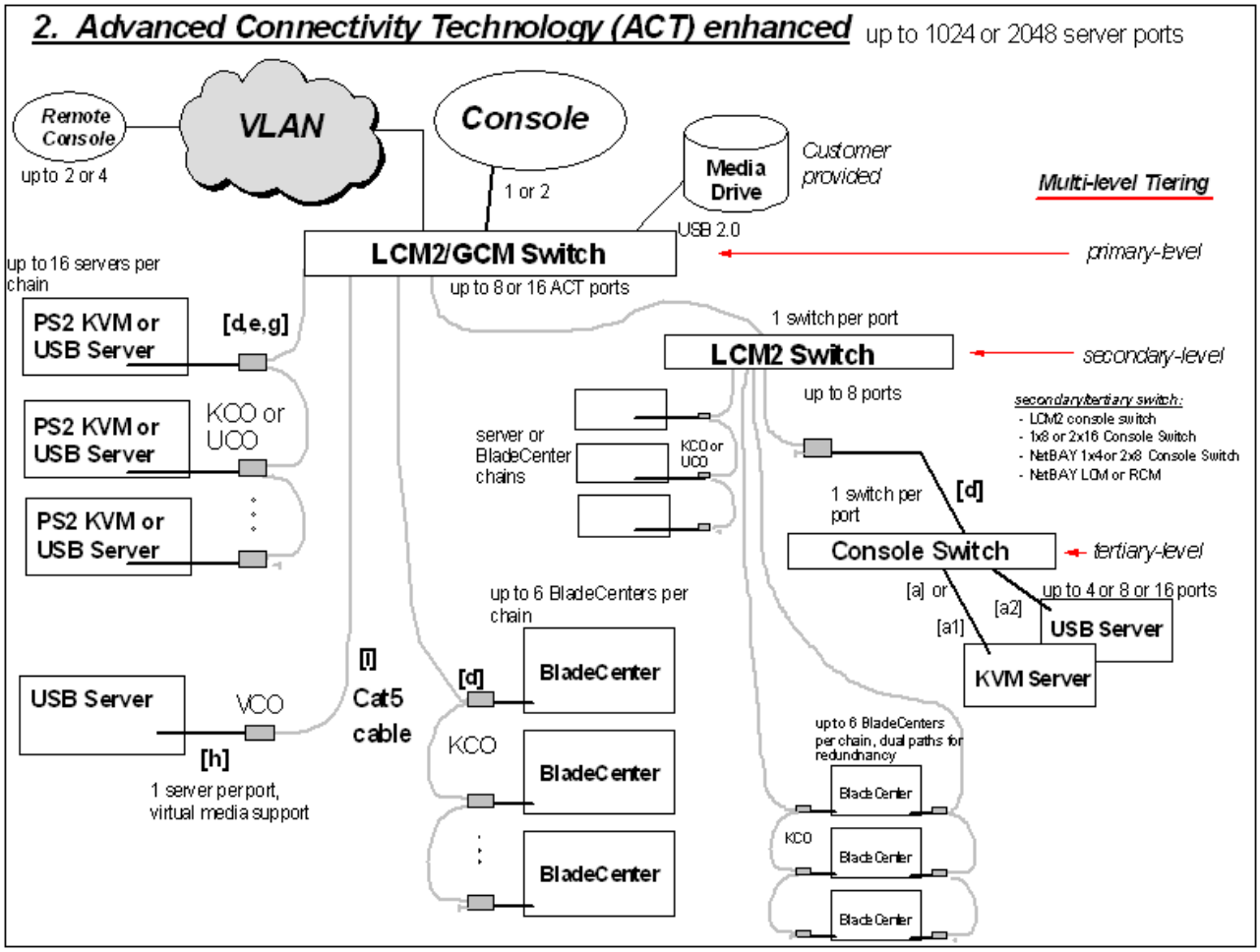

Refer to the cable labeling key in the Cable Options table appearing later in this section.

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Switch Options

			Ports					Capacity										Standard Parts				
			IN		OUT			Single Switch				Two-level Tiering		Three-level Tiering								
Option Number	Description[1]	Switch Type	Type [2]	Qty	Type	Qty	ACI ports[3]	max PS2 KVM servers	max USB KVM servers	max BladeCenters	ACT chains	max switches	max KVM servers	max switches	max KVM servers	local consoles	remote consoles	1U blank filler panel	1.8m Cat5 cable	Cat5 terminator	EIA mounting kit	side-wall mounting kit
17351LX	1x8 Console Switch	Enh KVM	ARI	8	PS2	1	1	8	8	8	-	8	128	-	-	1	-	1	-	-	1	1
17352LX	2x16 Console Switch	Enh KVM	ARI	16	PS2	2	1	16	16	16	-	16	256	-	-	2	-	1	-	-	1	1
17351GX	2x8 Local Console Manager (LCM2)	ACT	ACT	8	PS2 or USB	2	1	128	128	48	8	8	512	64	1024	2	-	1	1	8	1	1
17352GX	2x16 Global Console Manager (GCM2)	ACT	ACT	16	PS2 or USB	1	0	256	256	96	16	16	2048	128	2048	1	2	1	1	16	1	1
					LAN	1																
17354GX	4x16 Global Console Manager (GCM4)	ACT	ACT	16	PS2 or USB	1	0	256	256	96	16	16	2084	128	2048	1	4	1	1	16	1	1
					LAN	1																

Notes:
1. All switches are RoHS compliant.
2. ARI port is an RJ45 connector used to connect servers with appropriate console cables (Option P/Ns 31R3130, 31R3132); ACT port is an advanced ARI RJ45 port supporting chaining of servers and virtual media using Cat5 cables and appropriate conversion cables (Option P/Ns 39M2894, 39M2895, 39M2896, 39M2897).
3. ACI port is an RJ45 connector used for direct connection of this switch up to one of the parent switch's ARI or ACT ports using Cat5 cable.

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Switch Placement Rules

Mounting Locations	LCM2	GCM
Monitor shelf\switch bay	yes	no
1U 17in Console\switch bay	yes	no
With 2U console[1]	yes	yes
Side-wall compartment	yes	yes
U compartment (EIA space)	yes	yes

Notes:

1. Mounts above 2U console (requires 1U of space).

Cable Options

Label	Part Number	Description	2.1m KVM cable (PS2 male to PS2 male)	3.8m KVM cable (PS2 male to PS2 male)	3m PS2 KVM cable (PS2 male to RJ45)	3m USB KVM cable (USB,DB15 to RJ45)	260mm C2T chaining cable (C2T male to C2T male)[1]	2m C2T chaining cable (C2T male to C2T male)[2]	2m C2T breakout cable (C2T male to PS2 female)	250mm KCO cable (PS2 male to RJ45)	1.5m KCO cable (PS2 male to RJ45)	114mm CCO cable (C2T male to RJ45)	1.5m UCO cable (USB,DB15 to RJ45)	1.5m VCO cable (USB,DB15 to RJ45)	150mm Cat5 cable (RJ45 to RJ45)	350mm Cat5 cable (RJ45 to RJ45)	1.8m Cat5 cable (RJ45 to RJ45)	Usage
[a1]	31R3130	3m PS2 Console Switch Cable	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	servers with PS2 KVM ports
[a2]	31R3132	3m USB Console Switch Cable	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	servers with USB+VGA KVM ports
[d]	39M2896	short KVM Conversion Option kit (KCO)	-	-	-	-	-	-	-	4	-	-	-	-	4	-	-	(x305, x306, BC, Console Switch)[5]
[e]	39M2897	long KVM Conversion Option kit (KCO)	-	-	-	-	-	-	-	-	4	-	-	-	-	4	-	servers with cable management arms[5]
[g]	39M2895	USB Conversion Option Kit (UCO)	-	-	-	-	-	-	-	-	-	-	4	-	-	4	-	e325, e326, x382, x455
[h]	39M2894	Virtual Media Conversion Option (VCO)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	servers with USB+VGA KVM ports

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Cable Options

Label	Part Number	Description	2.1m KVM cable (PS2 male to PS2 male)	3.8m KVM cable (PS2 male to PS2 male)	3m PS2 KVM cable (PS2 male to RJ45)	3m USB KVM cable (USB,DB15 to RJ45)	260mm C2T chaining cable (C2T male to C2T male)[1]	2m C2T chaining cable (C2T male to C2T male)[2]	2m C2T breakout cable (C2T male to PS2 female)	250mm KCO cable (PS2 male to RJ45)	1.5m KCO cable (PS2 male to RJ45)	114mm CCO cable (C2T male to RJ45)	1.5m UCO cable (USB,DB15 to RJ45)	1.5m VCO cable (USB,DB15 to RJ45)	150mm Cat5 cable (RJ45 to RJ45)	350mm Cat5 cable (RJ45 to RJ45)	1.8m Cat5 cable (RJ45 to RJ45)	Usage
[i]	-	Cat5 cable	provided with option or by customer															
[a]	94G7447	Console Cable Set - 12ft	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	servers with PS2 KVM ports[3]
[b]	with server	C2T chaining cable	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	included with x335[4]
[c]	06P4792	C2T Cable Kit	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	x335
[f]	32P1637	C2T Conversion Option kit	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	x335[5]

Notes:
1. Short C2T Interconnect chaining cable standard with the C2T-capable servers.
2. C2T Cable Kit (P/N 06P4792) includes a long C2T chaining cable for use when interconnected servers are farther than three EIA units apart.
3. PS2 KVM connectors: keyboard 6-pin DIN, mouse 6-pin DIN, video HD-15 VGA.
4. C2T Interconnect ports use special connectors.
5. ACT conversion options convert from PS2 KVM, USB plus VGA or C2T interconnect to Cat5 RJ45 connectors.

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Chapter 55. xSeries rack power configurator

Rack Power Products:

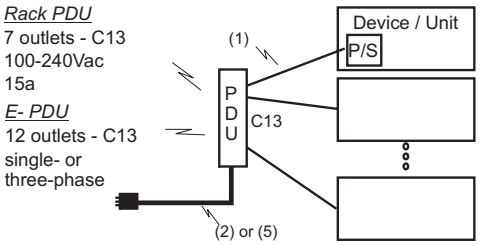
Distributed Power Interface (DPI) Power Distribution Units (PDUs)

- DPI 100-127v NEMA PDU
- DPI Universal Rack PDU
- DPI Single-phase Front-end PDUs
- DPI Single-phase Enterprise PDUs
- DPI Three-phase Enterprise PDUs
- DPI Single-phase High Density PDU
- DPI Three-phase High Density PDU

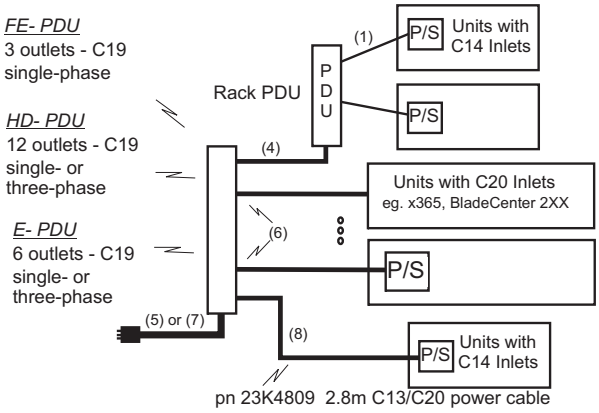
Possible Power Configurations:

Note: P/S = Power Supply

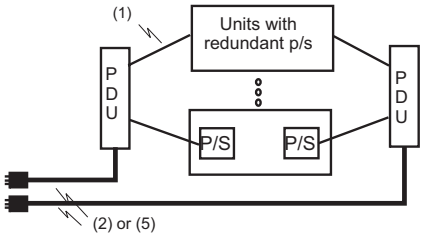
Single Rack PDU or Enterprise C13 PDU



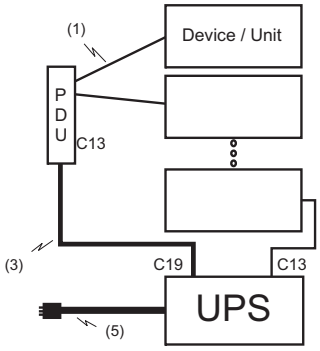
Front-end PDU, High Density PDU, or Enterprise C19 PDU



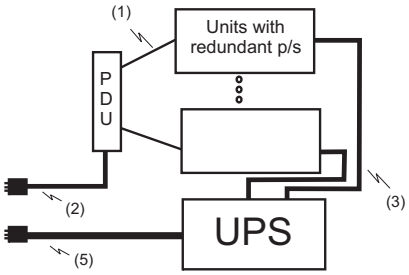
Redundant Power Distribution



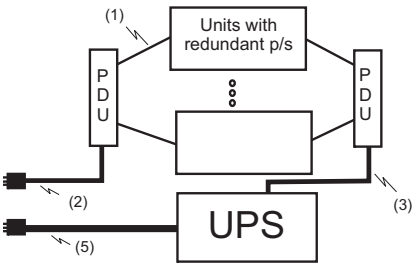
PDU used as UPS back-end



Redundant Power Distribution with PDU and UPS



Redundant Power Distribution with PDU and UPS with PDU



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Notes:

1. Each device usually comes with a power cord. The PDU requires the power cord to have an IEC 320-C14 plug. Order 39Y7932 (14ft) if appropriate cord is not provided with the device.
2. Each PDU and UPS comes with a country-specific power cord.
3. Internal rack power cable is provided with APC SmartUPS 5000 UPS.
4. One 2m internal rack power cable provided with DPI Rack PDU.
5. Line cord provided with Front-end PDU.
6. UPS comes with a country-specific power cord or a terminal block.
7. Devices with C20 power inlets included 2.8m C19 to C20 power cords.
8. Enterprise and High Density PDUs include hardwired or pluggable line cord.
9. Option 39Y7938 provides a C13 to C20 power cord to attach normal devices with C14 power inlets directly to Front-end, Enterprise C19, or High Density PDUs.

Table 130. Outlets

Outlets	C19	C13	5-15R
NEMA PDU	0	0	6
Rack PDU	0	7	0
Front-end PDU	3	0	0
Enterprise C13 PDU	0	12	0
Enterprise C19 PDU	6	0	0
High Density PDU	12	0	0

	US models				EMEA models		
Outlets	**C19**	**C13**	**5-15R**	**L5-20R**	**C19**	**C13**	**L5-20R**
APC 2U 1400RM	0	0	6	0	0	4	0
IBM 3000X LV	0	6	0	1[1]	0	6	1[1]
IBM 3000X HV	1	7	0	0	1	7	0
APC5000RM	2	8	0	0	2	8	0
IBM 7500X HV	4	0	0	0	4	0	0
IBM 10000X HV	4	0	0	0	4	0	0

Notes:

1. Includes L5-20P to L5-15R adapter cable.

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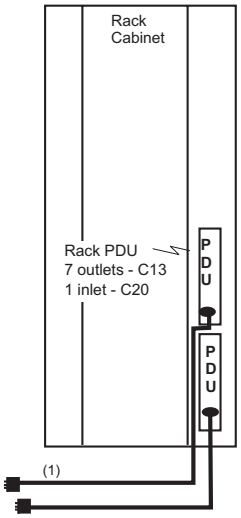
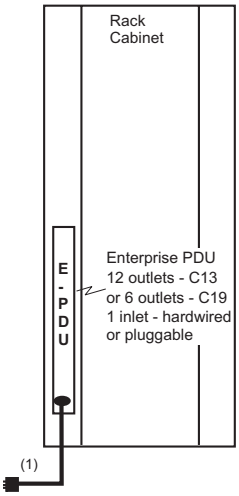
Typical Rack Power Configurations

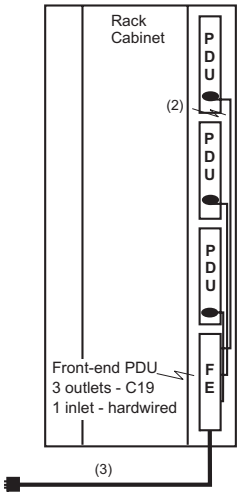
Simple: two Rack PDUs (two circuits, 14 outlets)



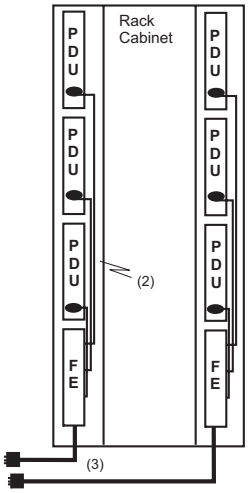
Simple: one Enterprise PDU (single circuit, 6 or 12 outlets)



Simple: three Rack PDUs and one Front-end PDU (single circuit, 21 outlets)



Redundant: six Rack PDUs and two Front-end PDUs (dual circuit, 42 outlets)



Notes:
1. Each PDU and UPS comes with a country-specific power cord.
2. One 2m internal rack power cable provided with DPI Rack PDU.
3. Line cord provided with Front-end PDU.

Attention: Customers are responsible for providing a dedicated circuit for each line cord protected with an appropriate circuit breaker.

Rack Rules and PDU Capacities

- NetBay and DPI PDUs cannot be mixed in the same side-wall compartment.
- DPI Rack PDUs can be cabled to NetBay Front-end PDUs.

PDUs per Rack	Standard		Enterprise		
	25U	42U	9308		
	2-bay	2-bay	2-bay	3-bay	4-bay
Rack PDUs	4	8	8	8	12
Front-end PDUs	2	4	2	4	4
Enterprise PDUs	2	4	2	4	4
High Density PDUs	2	4	4	4	4
Total PDUs	4	12	8	12	16

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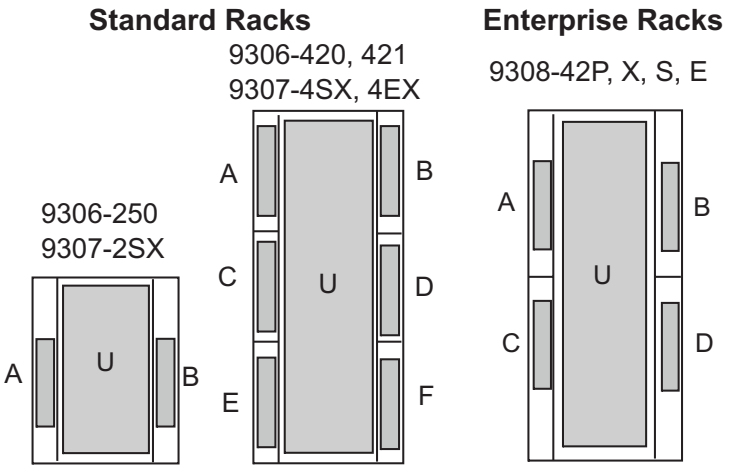
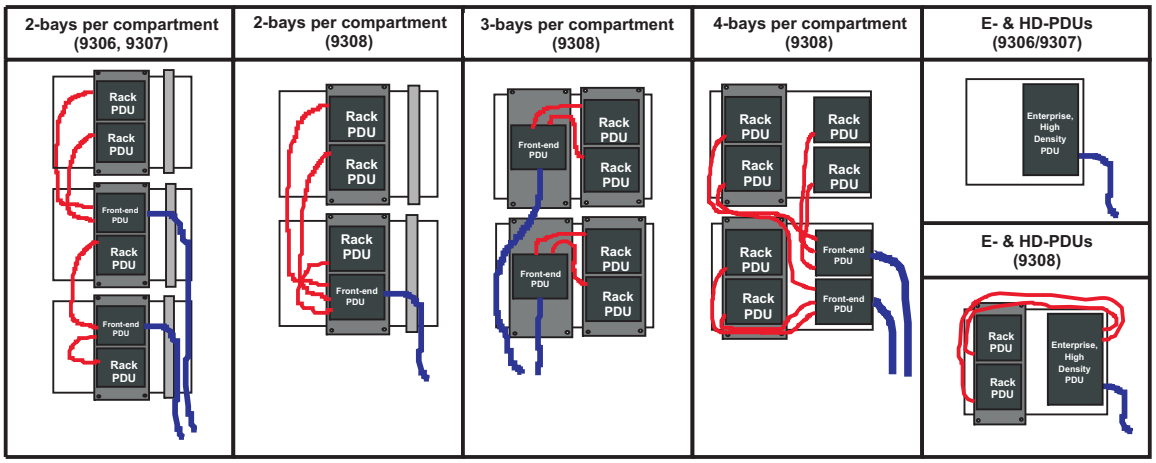


Side-wall Compartment Arrangements



Note: The above is intended to show only typical arrangements, not all possible arrangements.

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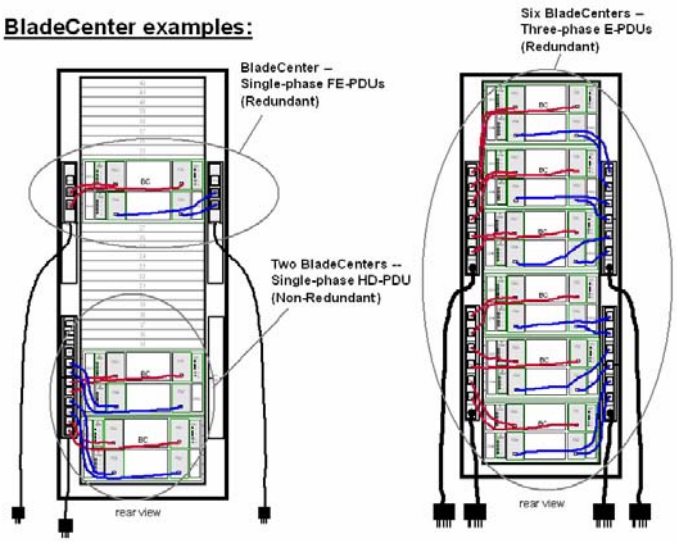

Country-specific considerations: USA, Canada, parts of Latin America, Taiwan

Power Cables:

(1) Device to Rack PDU or Enterprise C13 PDU power cable
IEC C13 to C14, 10/15a cable
typical: 36L8886 (2.8m)
requirement: C14 plug, long enough to reach
available option: 94G7448 (14ft)
(2) Rack PDU to wall line cord
IEC C19 to country-specific connector, 16/20a, 14ft (4.3m)
(3) Rack PDU to UPS power cable
IEC C19 to C20, 16/20a
00N7700 (2m)
provided with 37L6861 APC SU-5000RMB
(4) Rack PDU to Front-end PDU power cable
IEC C19 to C20, 16/20a
00N7698 (1m) provided with the NetBAY Front-end PDUs
00N7700 (2m) provided with the DPI Front-end PDUs
(5) Front-end PDU to wall line cord
hardwired to country-specific connector, 30/32a, 60/63a, 8.2ft (2.5m)
(7) Device to High Density PDU power cable
IEC C19 to C20, 16/20a, 2.5m
(8) Enterprise PDU to wall line cord
hardwired or pluggable to country-specific connector, 30/60a, 14ft (4.3m)
(9) High Density PDU to wall line cord
hardwired or plugugable to country-specific connector, 60a, 8.2ft (2.5m)
(10) Device to FE-, E-, or HD-PDU power cable
IEC C13 to C20, 10/15a cable
option: 23K4809 9ft (2.8m)

(2) Line Cords: Rack PDU

(5) Line Cords: Front-end PDU

(8) Line Cords:Enterprise PDU

(9) Line Cords:High Density PDU

Rack PDUs

Part Number	Plug Type	Source Circuit (single phase 50/60Hz)	PDU Output (single phase 50/60Hz)
32P1761	NEMA L5-15P	100-127Vac, 15a	six 100-127Vac, NEMA 5-15R receptacles, shared 12a
32P1736	NEMA L5-20P	100-127Vac, 20a	seven 100-127Vac, shared 15a
	NEMA L6-20P	200-240Vac, 20a	seven 200-240Vac, shared 15a

Front-end PDUs

Part Number	Plug Type	Source Circuit (50/60Hz)	PDU Output (single phase 50/60Hz)
32P1751	NEMA L5-30P	100-127Vac, 30a, single-phase	three 100-127Vac, 20a each, shared 24a
32P1766	NEMA L6-30P	208Vac, 30a, single-phase line-to-line with ground	three 208Vac, 20a each, shared 24a
32P1767	IEC 309-2P+G	208Vac, 60a, single-phase line-to-line with ground	three 208Vac, 20a each, shared 48a

Enterprise PDUs

Part Number	Plug Type	Source Circuit (50/60Hz)	PDU Output (single phase 50/60Hz)
26K4246	NEMA L6-30P	208Vac, 30a, single-phase dedicated circuit	twelve 208Vac, 10a each, shared 24a
26K4242	IEC 309 2P+G	208Vac, 60a, single-phase dedicated circuit	twelve 208Vac, 10a each, shared 48a
26K4244	IEC 309 3P+G	208Vac, 60a, three-phase delta dedicated circuit	twelve 208Vac, 10a each, shared 28a per four outlet phase group
26K4256	IEC 309 2P+G	208Vac, 60a, single-phase dedicated circuit	six 208Vac, 16a each, shared 48a
26K4258	IEC 309 3P+G	208Vac, 60a, three-phase delta dedicated circuit	six 208Vac, 16a each, shared 28a per two outlet phase group

High Density PDUs

Part Number	Plug Type	Source Circuit (50/60Hz)	PDU Output (single phase 50/60Hz)
73P5855	IEC 309 2P+G	208Vac, 60a, single-phase dedicated circuit	twelve 208Vac, 16a each, shared 48a
73P5847	IEC 309 3P+G	208Vac, 60a, three-phase delta dedicated circuit	twelve 208Vac, 16a each, shared 28a per four outlet phase group

Power Load Capacity

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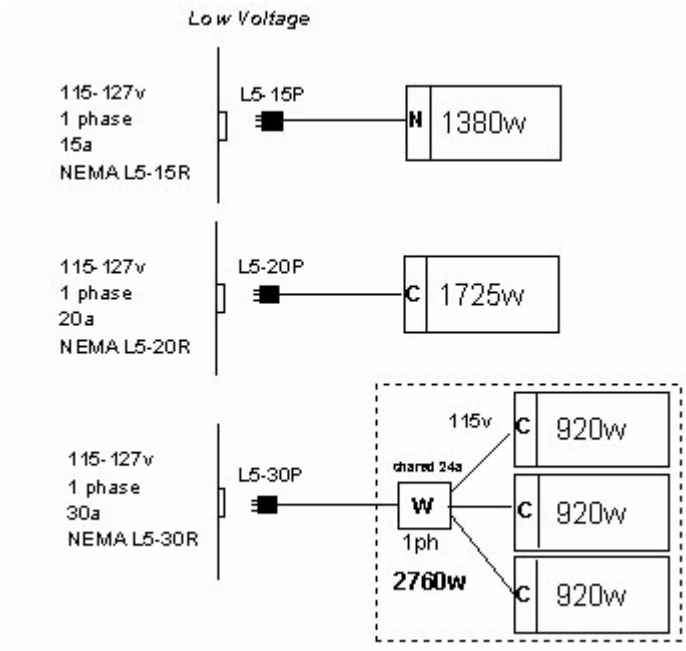
Legend

N	NEMA PDU with a 12a circuit breaker
C	Rack PDU with a 15a circuit breaker
W	FE PDU with a 20a fuse per outlet
S	E PDU with 20a circuit breaker per C19 outlet or C13 outlet pair or HD PDU with 20a circuit breaker per outlet
Max leakage current > 3.5ma	
A customer-supplied dedicated circuit is assumed.	
Actual power values (watts) may vary based on actual source voltage.	



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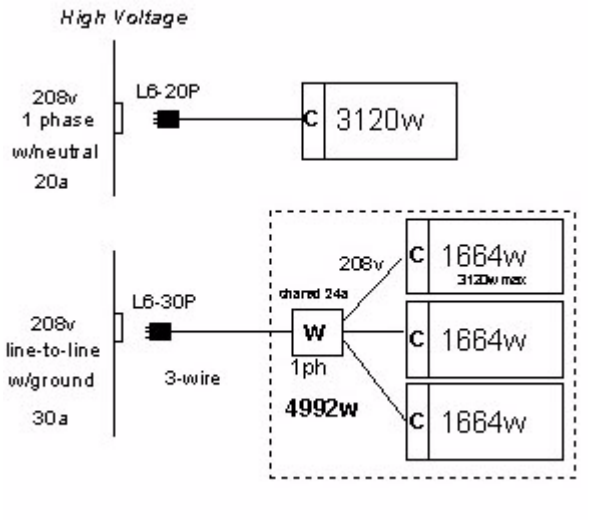

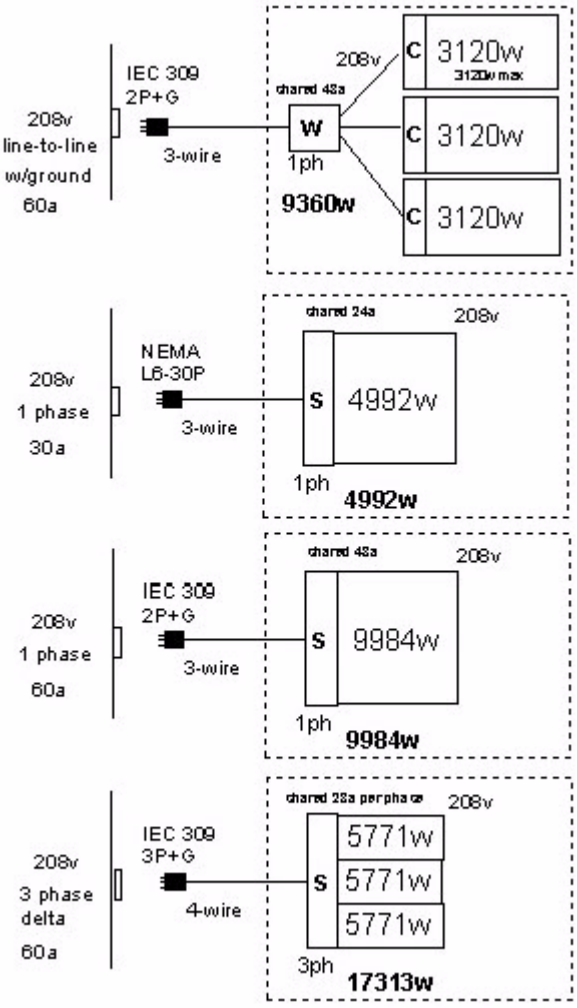

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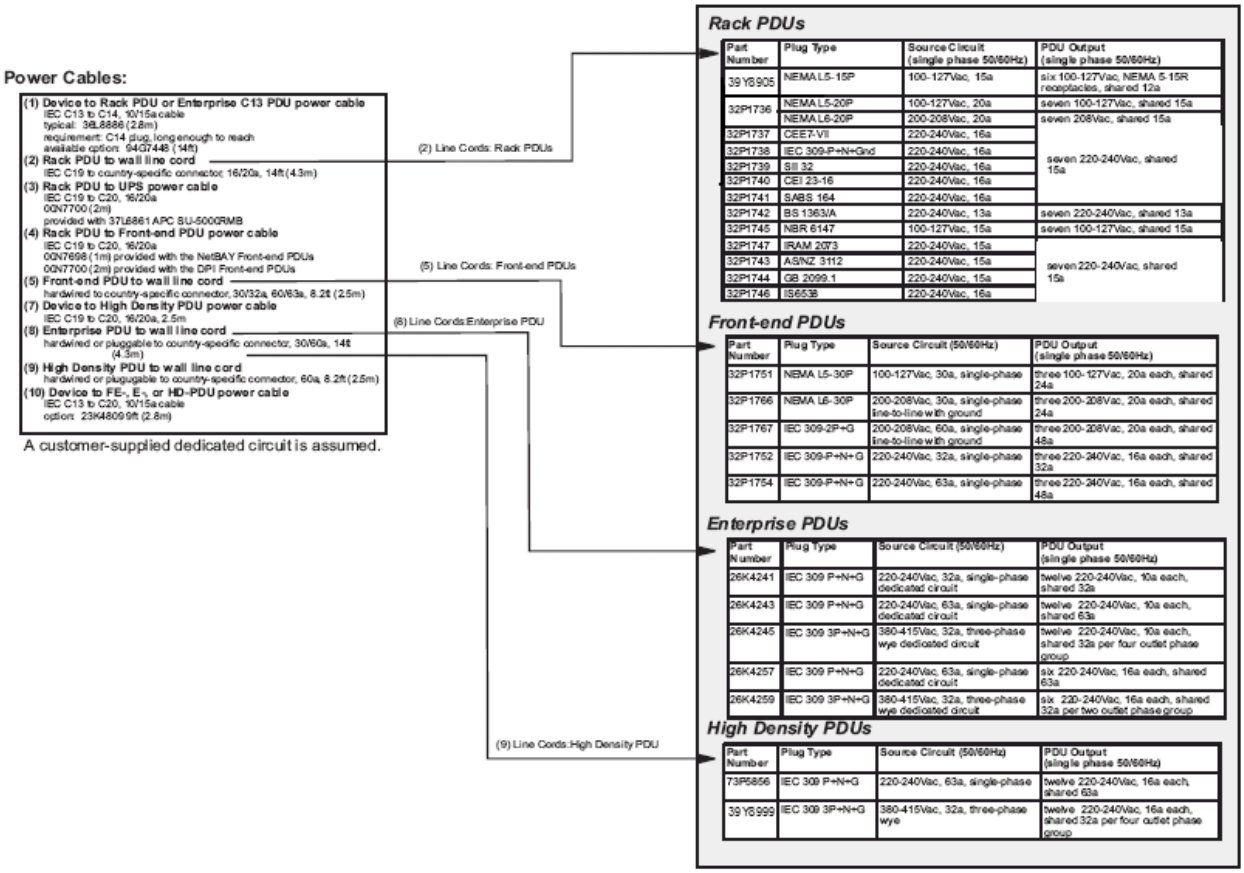
Country-specific considerations: Europe, Africa, Asia Pacific, parts of Latin America


Power Cables:
(1) Device to Rack PDU or Enterprise C13 PDU power cable
IEC C13 to C14, 10/15a cable
typical: 39L8886 (2.8m)
requirement: C14 plug, long enough to reach
available option: 94G7448 (14ft)
(2) Rack PDU to wall line cord
IEC C19 to country-specific connector, 16/20a, 14ft (4.3m)
(3) Rack PDU to UPS power cable
IEC C19 to C20, 16/20a
00N7700 (2m)
provided with 37L6861 APC SU-5000RMB
(4) Rack PDU to Front-end PDU power cable
IEC C19 to C20, 16/20a
00N7698 (1m) provided with the NetBAY Front-end PDUs
00N7700 (2m) provided with the DPI Front-end PDUs
(5) Front-end PDU to wall line cord
hardwired to country-specific connector, 30/32a, 60/63a, 8.2ft (2.5m)
(7) Device to High Density PDU power cable
IEC C19 to C20, 16/20a, 2.5m
(8) Enterprise PDU to wall line cord
hardwired or pluggable to country-specific connector, 30/60a, 14ft (4.3m)
(9) High Density PDU to wall line cord
hardwired or pluggable to country-specific connector, 60a, 8.2ft (2.5m)
(10) Device to FE-, E-, or HD-PDU power cable
IEC C13 to C20, 10/15a cable
option: 23K4809 9ft (2.8m)
A customer-supplied dedicated circuit is assumed.
(2) Line Cords: Rack PDUs
(5) Line Cords: Front-end PDUs
(8) Line Cords:Enterprise PDU
(9) Line Cords:High Density PDU
Rack PDUs
Part Number | Plug Type | Source Circuit (single phase 50/60Hz) | PDU Output (single phase 50/60Hz)
39Y8905 | NEMA L5-15P | 100-127Vac, 15a | six 100-127Vac, NEMA 5-15R receptacles, shared 12a
32P1736 | NEMA L5-20P | 100-127Vac, 20a | seven 100-127Vac, shared 15a
NEMA L6-20P | 200-208Vac, 20a | seven 208Vac, shared 15a
32P1737 | CEE7-VII | 220-240Vac, 16a | seven 220-240Vac, shared 15a
32P1738 | IEC 309-P+N+Gnd | 220-240Vac, 16a
32P1739 | SII 32 | 220-240Vac, 16a
32P1740 | CEI 23-16 | 220-240Vac, 16a
32P1741 | SABS 164 | 220-240Vac, 16a
32P1742 | BS 1363/A | 220-240Vac, 13a | seven 220-240Vac, shared 13a
32P1745 | NBR 6147 | 100-127Vac, 15a | seven 100-127Vac, shared 15a
32P1747 | IRAM 2073 | 220-240Vac, 15a | seven 220-240Vac, shared 15a
32P1743 | AS/NZ 3112 | 220-240Vac, 15a
32P1744 | GB 2099.1 | 220-240Vac, 15a
32P1746 | IS6538 | 220-240Vac, 16a
Front-end PDUs
Part Number | Plug Type | Source Circuit (50/60Hz) | PDU Output (single phase 50/60Hz)
32P1751 | NEMA L5-30P | 100-127Vac, 30a, single-phase | three 100-127Vac, 20a each, shared 24a
32P1766 | NEMA L6-30P | 200-208Vac, 30a, single-phase line-to-line with ground | three 200-208Vac, 20a each, shared 24a
32P1767 | IEC 309-2P+G | 200-208Vac, 60a, single-phase line-to-line with ground | three 200-208Vac, 20a each, shared 48a
32P1752 | IEC 309-P+N+G | 220-240Vac, 32a, single-phase | three 220-240Vac, 16a each, shared 32a
32P1754 | IEC 309-P+N+G | 220-240Vac, 63a, single-phase | three 220-240Vac, 16a each, shared 48a
Enterprise PDUs
Part Number | Plug Type | Source Circuit (50/60Hz) | PDU Output (single phase 50/60Hz)
26K4241 | IEC 309 P+N+G | 220-240Vac, 32a, single-phase dedicated circuit | twelve 220-240Vac, 10a each, shared 32a
26K4243 | IEC 309 P+N+G | 220-240Vac, 63a, single-phase dedicated circuit | twelve 220-240Vac, 10a each, shared 63a
26K4245 | IEC 309 3P+N+G | 380-415Vac, 32a, three-phase wye dedicated circuit | twelve 220-240Vac, 10a each, shared 32a per four outlet phase group
26K4257 | IEC 309 P+N+G | 220-240Vac, 63a, single-phase dedicated circuit | six 220-240Vac, 16a each, shared 63a
26K4259 | IEC 309 3P+N+G | 380-415Vac, 32a, three-phase wye dedicated circuit | six 220-240Vac, 16a each, shared 32a per two outlet phase group
High Density PDUs
Part Number | Plug Type | Source Circuit (50/60Hz) | PDU Output (single phase 50/60Hz)
73P5856 | IEC 309 P+N+G | 220-240Vac, 63a, single-phase | twelve 220-240Vac, 16a each, shared 63a
39Y8999 | IEC 309 3P+N+G | 380-415Vac, 32a, three-phase wye | twelve 220-240Vac, 16a each, shared 32a per four outlet phase group

Power Load Capacity

Legend

C	Rack PDU with a 15a circuit breaker
W	FE PDU with a 20a fuse per outlet
S	E PDU with 20a circuit breaker per C19 outlet or C13 outlet pair or HD PDU with 20a circuit breaker per outlet
Actual power values (watts) may vary based on actual source voltage.	
A customer-supplied dedicated circuit is assumed.	

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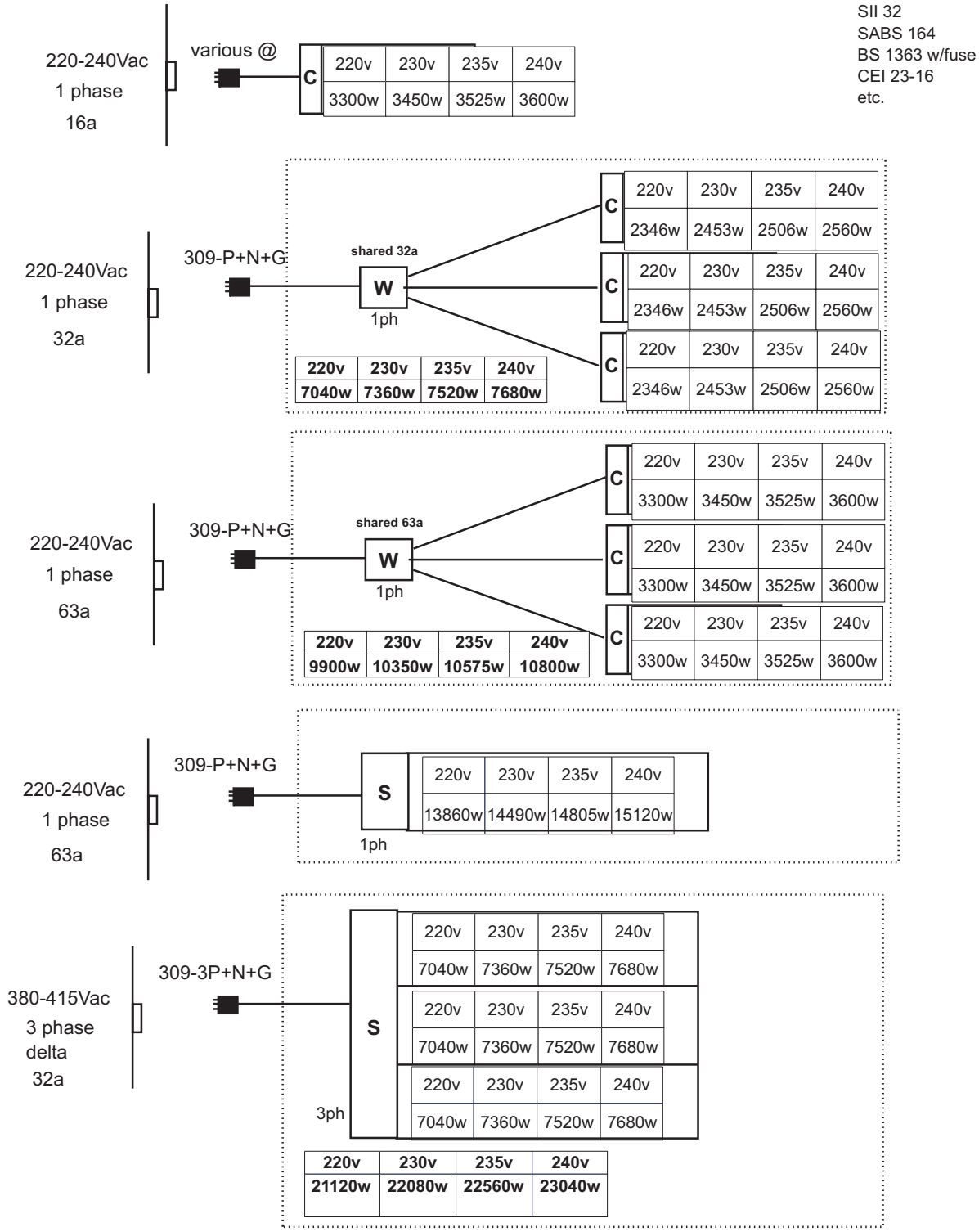
Power Load Capacity

@ country specific:
IEC 309-2P+G
CEE7-VII
SII 32
SABS 164
BS 1363 w/fuse
CEI 23-16
etc.



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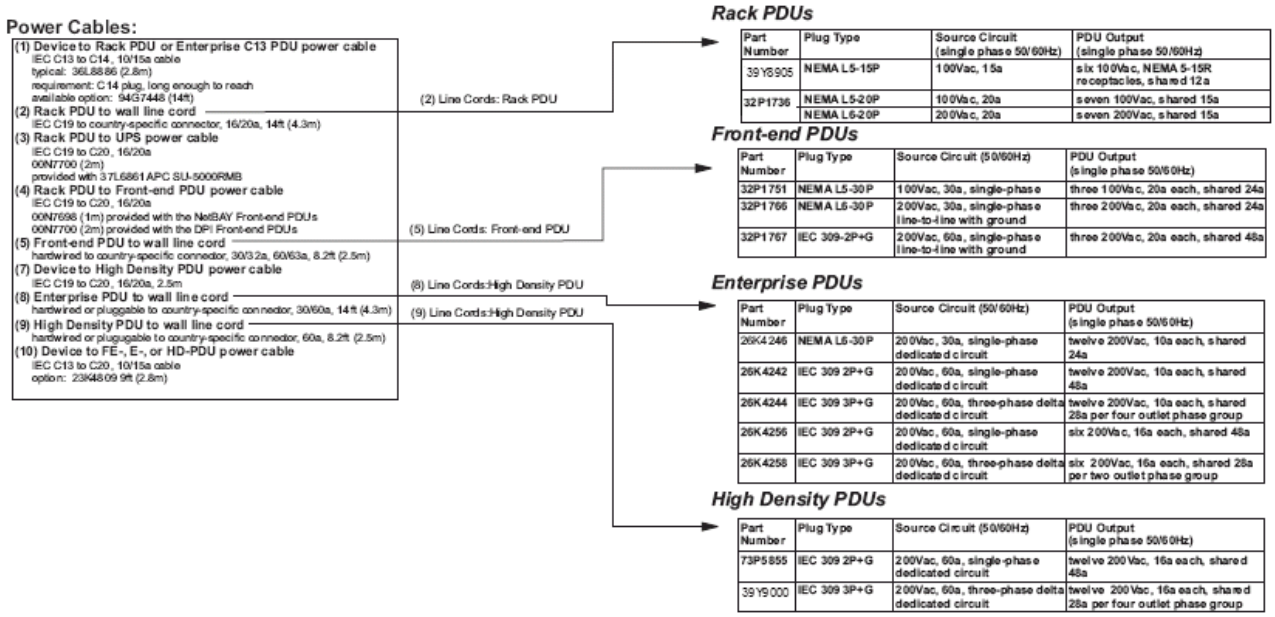
Country-specific considerations: Japan


Power Cables:
(1) Device to Rack PDU or Enterprise C13 PDU power cable
IEC C13 to C14, 10/15a cable
typical: 36L8886 (2.8m)
requirement: C14 plug, long enough to reach
available option: 94G7448 (14ft)
(2) Rack PDU to wall line cord
IEC C19 to country-specific connector, 16/20a, 14ft (4.3m)
(3) Rack PDU to UPS power cable
IEC C19 to C20, 16/20a
00N7700 (2m)
provided with 37L6861 APC SU-5000RMB
(4) Rack PDU to Front-end PDU power cable
IEC C19 to C20, 16/20a
00N7698 (1m) provided with the NetBAY Front-end PDUs
00N7700 (2m) provided with the DPI Front-end PDUs
(5) Front-end PDU to wall line cord
hardwired to country-specific connector, 30/32a, 60/63a, 8.2ft (2.5m)
(7) Device to High Density PDU power cable
IEC C19 to C20, 16/20a, 2.5m
(8) Enterprise PDU to wall line cord
hardwired or pluggable to country-specific connector, 30/60a, 14ft (4.3m)
(9) High Density PDU to wall line cord
hardwired or pluggable to country-specific connector, 60a, 8.2ft (2.5m)
(10) Device to FE-, E-, or HD-PDU power cable
IEC C13 to C20, 10/15a cable
option: 23K8809 9ft (2.8m)
(2) Line Cords: Rack PDU
(5) Line Cords: Front-end PDU
(8) Line Cords:High Density PDU
(9) Line Cords:High Density PDU
Rack PDUs
Part Number
Plug Type
Source Circuit (single phase 50/60Hz)
PDU Output (single phase 50/60Hz)
39Y8905
NEMA L5-15P
100Vac, 15a
six 100Vac, NEMA 5-15R receptacles, shared 12a
32P1736
NEMA L5-20P
100Vac, 20a
seven 100Vac, shared 15a
NEMA L6-20P
200Vac, 20a
seven 200Vac, shared 15a
Front-end PDUs
Part Number
Plug Type
Source Circuit (50/60Hz)
PDU Output (single phase 50/60Hz)
32P1751
NEMA L5-30P
100Vac, 30a, single-phase
three 100Vac, 20a each, shared 24a
32P1766
NEMA L6-30P
200Vac, 30a, single-phase line-to-line with ground
three 200Vac, 20a each, shared 24a
32P1767
IEC 309-2P+G
200Vac, 60a, single-phase line-to-line with ground
three 200Vac, 20a each, shared 48a
Enterprise PDUs
Part Number
Plug Type
Source Circuit (50/60Hz)
PDU Output (single phase 50/60Hz)
26K4246
NEMA L6-30P
200Vac, 30a, single-phase dedicated circuit
twelve 200Vac, 10a each, shared 24a
26K4242
IEC 309 2P+G
200Vac, 60a, single-phase dedicated circuit
twelve 200Vac, 10a each, shared 48a
26K4244
IEC 309 3P+G
200Vac, 60a, three-phase delta dedicated circuit
twelve 200Vac, 10a each, shared 28a per four outlet phase group
26K4256
IEC 309 2P+G
200Vac, 60a, single-phase dedicated circuit
six 200Vac, 16a each, shared 48a
26K4258
IEC 309 3P+G
200Vac, 60a, three-phase delta dedicated circuit
six 200Vac, 16a each, shared 28a per two outlet phase group
High Density PDUs
Part Number
Plug Type
Source Circuit (50/60Hz)
PDU Output (single phase 50/60Hz)
73P5855
IEC 309 2P+G
200Vac, 60a, single-phase dedicated circuit
twelve 200Vac, 16a each, shared 48a
39Y9000
IEC 309 3P+G
200Vac, 60a, three-phase delta dedicated circuit
twelve 200Vac, 16a each, shared 28a per four outlet phase group

Power Load Capacity

Legend

N	NEMA PDU with a 12a circuit breaker
C	Rack PDU with a 15a circuit breaker
W	FE PDU with a 20a fuse per outlet
S	E PDU with a 20a circuit breaker per C19 outlet or C13 outlet pair or HD PDU with 20a circuit breaker per outlet
Max leakage current > 3.5ma	
A customer-supplied dedicated circuit is assumed.	
Actual power values may vary based on actual source voltage.	

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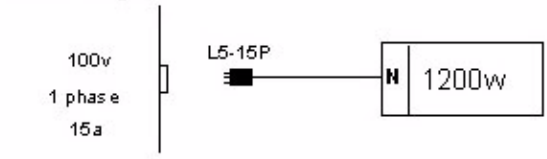
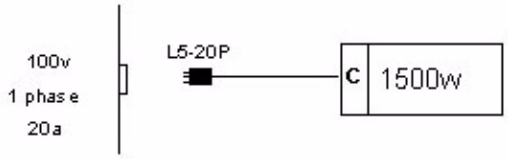
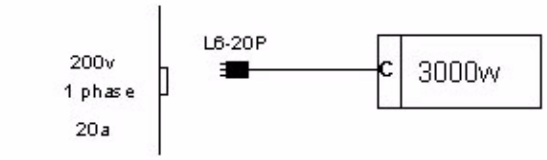
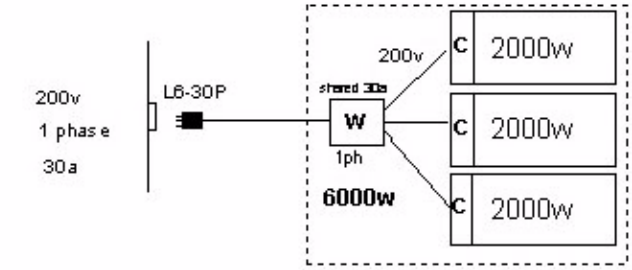
Low Voltage

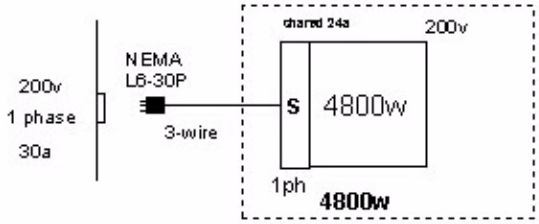


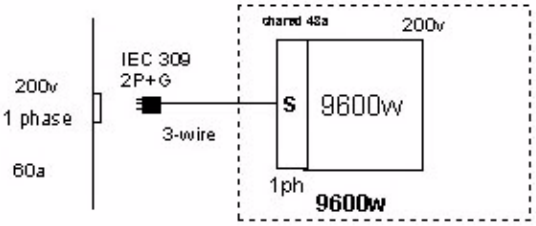


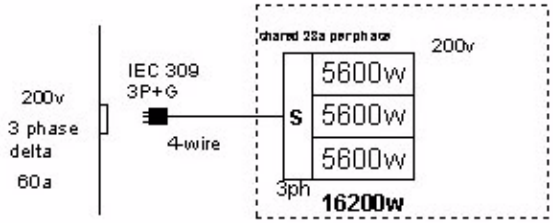
High Voltage











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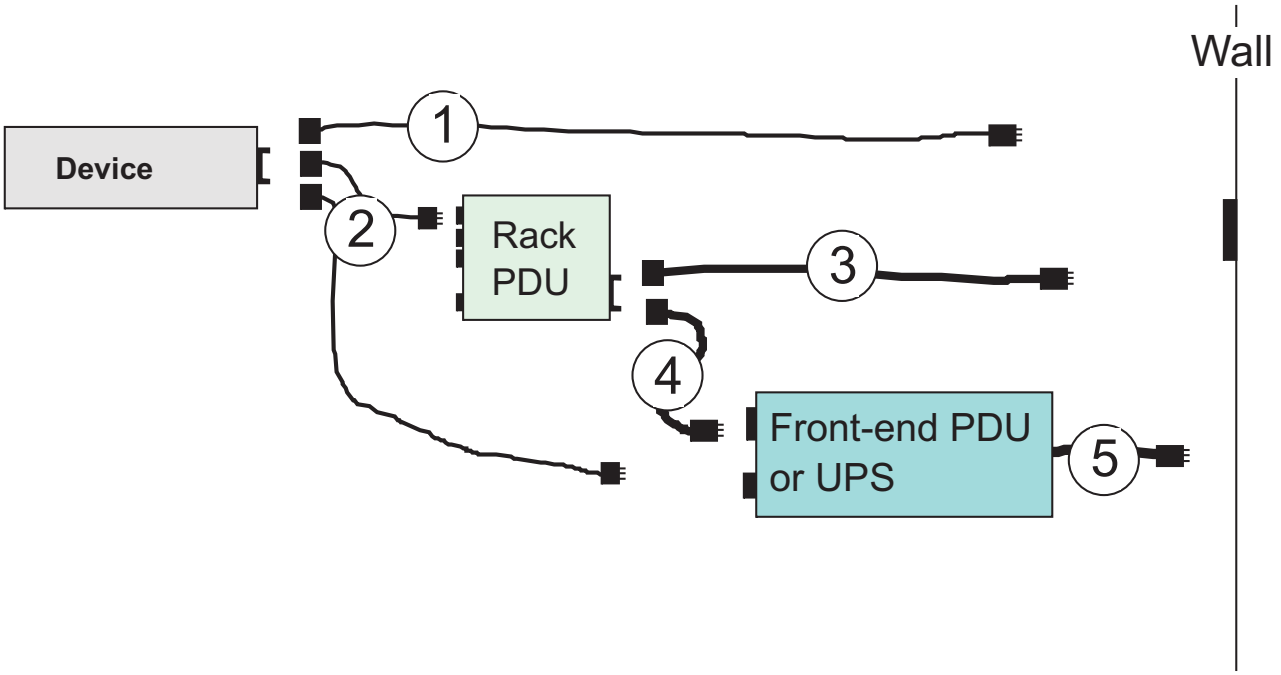
Rack PDU power cables

Legend:

1. Device to wall line cord
2. Device to PDU/UPS power cable
3. Rack PDU to wall line cord
4. Rack PDU to Front-end PDU or UPS power cable
5. Front-end PDU, Enterprise PDU, High-density PDU, or UPS to wall line cord



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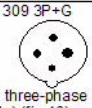
PDU power cord plug types

PDU Power Cord Plug Types

A	B	C	D	E	F
IEC 320-C13/C14 250Vac/10a (fig 15/26) WW - intra-rack	IEC 320-C19/C20 250Vac/16a (fig 56/61) WW - intra-rack	IEC 309 2P+G 60A single-phase (fig 46)	IEC 309 3P+G  60A three-phase (delta) (fig 46)	IEC 309 P+N+G 32A/63A single-phase (fig 46)	IEC 309 3P+N+G 32A three-phase (wye) (fig 46)
G	H	I	J	K	L
NEMA 5-15P 125Vac/15a (fig 4) North America	NEMA L5-20P 125Vac/20a single-phase (fig 8) North America	NEMA L5-30P 125Vac/30a single-phase (fig 9) North America	NEMA L6-20P 250Vac/20a single-phase (fig 11) North America	NEMA L6-30P 250Vac/30a single-phase (fig 12) North America	NEMA L21-30P 250Vac/30a three-phase (fig 65) North America
M	N				
IRAM 2073 250Vac/15a (fig 2) Argentina	NBR 6147 125Vac/15a (fig 69) Brazil				
O	P	Q	R	S	T
CEE7-VII 250Vac/16a (fig 18) Europe (other)	IEC 309 P+N+G 250Vac/16A (fig 46) Denmark/Switzerland	SI32 250Vac/16a (fig 32) Israel	CEI 23-16 250Vac/16a (fig 25) Italy	SABS 164 250Vac/16a (fig 22) South Africa	BS 1363/A w/ fuse 250Vac/13a (fig 23) UK
U	V	W			Y
AS/NZ 3112 250Vac/15a (fig 54) Australia / New Zealand	GB 2099.1 250Vac/15a (fig 62) China	IS6538 250Vac/16a (fig 68) India			special Burndy connector

Note: Match letters with Key columns in the following chart to identify power cables with these plug types.

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PDU power cables

	Option Part Number	Cable Part Number	Plug Type		Plug Type		Rating (a/v)	Cable Length (m/ft)	Country/Comments
Rack PDUs									
DPI 100-127V NEMA PDU (US)	39Y8905	-	hardwired	-	NEMA L5-20P	H	15a/ 125v	2.8m/ 9ft	US, Canada, Mexico,...; includes one 00N7700
DPI Universal Rack PDU (US)	32P1736	12J5117 14F1553	IEC 320-C19 IEC 320-C19	B B	NEMA L5-20P NEMA L6-20P	H J	18a/ 125v 18a/ 250v	4.3m/ 14ft 4.3m/ 14ft	US, Canada, Mexico,...; includes one 00N7700
DPI Universal Rack PDU (Argentina)	32P1747	36L8885	IEC 320-C19	B	IRAM 2073	M	15a/ 250v	4.3m/ 14ft	Argentina; includes one 00N7700
DPI Universal Rack PDU (Brazil)	32P1745	49P2115	IEC 320-C19	B	NBR 6147	N	15a/ 125v	4.3m/ 14ft	Brazil; includes one 00N7700
DPI Universal Rack PDU (Europe)	32P1737	14F1554	IEC 320-C19	B	CEE7-VII	O	16a/ 250v	4.3m/ 14ft	Europe (other); includes one 00N770
DPI Universal Rack PDU (Denmark)	32P1738	36L8823	IEC 320-C19	B	IEC 309 P+N+Gnd	P	16a/ 250v	4.3m/ 14ft	Denmark; includes one 00N7700
DPI Universal Rack PDU (Israel)	32P1739	14F1561	IEC 320-C19	B	SI 32	Q	16a/ 250v	4.3m/ 14ft	Israel; includes one 00N7700
DPI Universal Rack PDU (Italy)	32P1740	14F1560	IEC 320-C19	B	CEI 23-16	R	16a/ 250v	4.3m/ 14ft	Italy; includes one 00N7700
DPI Universal Rack PDU (South Africa)	32P1741	14F1557	IEC 320-C19	B	SABS 164	S	16a/ 250v	4.3m/ 14ft	South Africa; includes one 00N7700
DPI Universal Rack PDU (UK)	32P1742	12J5988	IEC 320-C19	B	BS 1363/A w/fuse	T	13a/ 250v	4.3m/ 14ft	UK; includes one 00N7700
DPI Universal Rack PDU (Aus/NZ)	32P1743	14F1559	IEC 320-C19	B	AS/NZ 3112	U	15a/ 250v	4.3m/ 14ft	Australia/ New Zealand; includes one 00N7700
DPI Universal Rack PDU (China)	32P1744	01K9852	IEC 320-C19	B	GB 2099.1	V	15a/ 250v	4.3m/ 14ft	China; includes one 00N7700
DPI Universal Rack PDU (India)	32P1746	49P2083	IEC 320-C19	B	IS6538	W	16a/ 250v	4.3m/ 14ft	India; includes one 00N7700

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	Option Part Number	Cable Part Number	Plug Type		Plug Type		Rating (a/v)	Cable Length (m/ft)	Country/Comments
Front-end PDUs									
DPI Single-phase 30A Front-end PDU - LV (US)	32P1751	74P4314	Burndy	Y	NEMA L5-30P	H	30a/ 125v	2.8m/ 9ft	US, Canada, Mexico,...
DPI Single-phase 30A Front-end PDU - HV (US)	32P1766	74P4312	Burndy	Y	NEMA L6-30P	J	30a/ 208v	2.8m/ 9ft	US, Canada, Mexico,...
DPI Single-phase 60A Front-end PDU - HV (US)	32P1767	74P4313	Burndy	Y	IEC 309 2P+Gnd	C	60a/ 208v	2.8m/ 9ft	US, Canada, Mexico,...
DPI Single-phase 63A Front-end PDU - HV (I)	32P1754	74P4311	Burndy	Y	IEC 309 P+N+Gnd	C	63a/ 250v	2.8m/ 9ft	International
Enterprise PDUs									
DPI Single-phase 208V 30A C13 Enterprise PDU (US)	26K4246	25R2555	Burndy	Y	NEMA L6-30P	J	30a/ 208v	4.3m/ 14ft	US, Canada, Mexico,...
DPI Single-phase 208v 60A C13 Enterprise PDU (US)	26K4242	25R2556	Burndy	Y	IEC 309 2P+G	C	60a/ 208v	4.3m/ 14ft	US, Canada, Mexico,...
DPI Single-phase 208V 60A C19 Enterprise PDU (US)	26K4256	25R2556	Burndy	Y	IEC 309 2P+G	C	60a/ 208v	4.3m/ 14ft	US, Canada, Mexico,...
DPI Three-phase 208v 60A C19 Enterprise PDU (US)	39Y8923	-	hardwired	-	IEC 309 3P+G delta	D	60a/ 208v	4.3m/ 14ft	US, Canada, Mexico,...
DPI Single-phase 220-240V 32A C13 Enterprise PDU (International)	26K4241	25R2553	Burndy	Y	IEC 309 P+N+G	E	32a/ 250v	4.3m/ 14ft	International
DPI Single-phase 220-240V 63A C13 Enterprise PDU (International)	26K4243	25R2554	Burndy	Y	IEC 309 P+N+G	E	63a/ 250v	4.3m/ 14ft	International
DPI Three-phase 380-415V 32A C13 Enterprise PDU (International)	26K4245	25R2552	Burndy	Y	IEC 309 3P+N+G wye	F	32a/ 415v	4.3m/ 14ft	International
DPI Single-phase 220-240V 63A C19 Enterprise PDU (International)	26K4257	25R2554	Burndy	Y	IEC 309 P+N+G	E	63a/ 250v	4.3m/ 14ft	International

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	Option Part Number	Cable Part Number	Plug Type		Plug Type		Rating (a/v)	Cable Length (m/ft)	Country/Comments
DPI Three-phase 380-415V 32A C19 Enterprise PDU (International)	26K4259	25R2552	Burndy	Y	IEC 309 3P+N+G wye	F	32a/ 415v	4.3m/ 14ft	International
High Density PDUs									
DPI Single-phase 208V 60A High Density PDU (US)	73P5855	-	hardwired	-	IEC 309 2P+G	C	60a/ 250v	4.3m/ 14ft	US, Canada, Mexico,...
DPI Three -phase 208V 60A High Density PDU (US)	39Y9000	-	hardwired	-	IEC 309 3P+G	D	60a/ 250v	4.3m/ 14ft	US, Canada, Mexico,...
DPI Single-phase220-240V 63A High Density PDU (International)	73P5856	-	hardwired	-	IEC 309 P+N+G	E	63a/ 250v	4.3m/ 14ft	International
DPI Three-phase 380-415V 32A High Density PDU (International)	39Y8999	-	hardwired	-	IEC 309 3P+N+G	F	32a/ 415v	4.3m/ 14ft	International
Power Cables									
Rack Power Cable Type C12 option	39Y7932	36L8861	IEC 320-C13	A	IEC 320-C14	A	10a/ 250v	4.3m/ 14ft	Worldwide
1.5m IEC 320-C13/C14	39Y7937	36L8860	IEC 320-C13	A	IEC 320-C14	A	10a/ 250v	1.5m/ 4.9ft	Worldwide
2.8m IEC 320-C13/C20	39Y7938	74P4430	IEC 320-C13	A	IEC 320-C20	B	10a/ 250v	2.8m/ 9ft	Worldwide
1m IEC power cable	-	00N7698	IEC 320-C19	B	IEC 320-C20	B	16a/ 250v	1m/3. 3ft	Worldwide
2m IEC power cable	-	00N7700	IEC 320-C19	B	IEC 320-C20	B	16a/ 250v	2m/6. 5ft	Worldwide
Power Cord Extension option	24P7864	11F0114	NEMA L6-30R	K	NEMA L6-30P	K	30a/ 208v	1.8m/ 6ft	US, Canada, Mexico,...
Power Cord Extension option	24P7887	21H7693	IEC 309 2P+G	C	IEC 309 2P+G	C	32a/ 350v	1.8m/ 6ft	International
Power Cord Extension option	24P7888	88G4764	IEC 309 3P+G	F	IEC 309 3P+N+G	F	32a/ 415v	1.8m/ 6ft	International

Note: US = United States, I = International, LV = Low Voltage (100-127Vac), HV = High Voltage (200-250Vac), NEMA = National Electrical Manufacturers Association, IEC = International Electrotechnical Commission.

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Part 2. Appendixes

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Appendix A. Internal tape drive attributes

Legend

FH	Full-high - approximate height 81 mm/3.2 in
HH	Half-high - approximate height 41 mm/1.6 in
SL	Slim-line - approximate height 25 mm/1 in

Option Number	Description	Storage Interface	Form Factor	MB/sec - Native/Compressed	Data/Cleaning Cartridges Included	Ext Tape Enclosures [1]
Tape Drives						
48P7042	20/40GB TR7 Internal IDE Tape Drive	IDE/ATAPI	SL or HH	2/4 - 20/40	1/1	-
39M5656	IBM DDS/5 Tape Option	Ultra2 (16-bit)	HH or FH	3.5/7 - 36/72	0/1	45591UX 45594UX
59P6719	IBM 40/80GB DLTVS Half High Tape Drive	Ultra160 (16-bit)	HH	3/6 - 40/80	0/1	45591UX 45594UX 4559HHX
59P6745	IBM 80/160 GB Half High VS160 Tape Drive	Ultra160 (16-bit)	HH	8/16 - 80/160	0/1	45591UX
59P6736	IBM 160/320 GB SDLT Internal SCSI Tape Drive	Ultra160 (16-bit)	FH	16/32 - 160/320	0/1	3503B1X 45594UX 4559FHX
59P6746	80/160GB VXA-2 Tape Drive	Ultra2 (16-bit)	HH	6/12 - 80/160	0/1	45591UX 45594UX 4559HHX
39M5658	200/400GB IBM LTO2 Tape Option	Ultra160 (16-bit)	HH	24/48 - 200/400	-	45591UX 45594UX 4559HHX
25R0006	80GB GoVault	SATA	HH	34/66 - 80/160	-	-
39M5657	IBM 400/800GB LTO3 Tape Option	Ultra320	FH	80/160 - 400/800	0/1	4559FHX 45594UX

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Option Number	Description	Storage Interface	Form Factor	MB/sec - Native/Compressed	Data/Cleaning Cartridges Included	Ext Tape Enclosures [1]
25R0045	IBM 160/320GB VXA3 Tape Drive	Ultra160	HH	12/24 - 160/320	-	-
External Tape Enclosures						
45591UX	IBM 1U xSeries Tape Enclosure Rack or Tower[2]	Ultra320, 160, 80 (16-bit)	1U Rack	-	-	-
45594UX	IBM 4U Rackmount SCSI Tape Drive Enclosure	Ultra2 (16-bit)	4U Rack	-	-	-
4559HHX	IBM 1U Half High Stand Alone SCSI Tape Drive Enclosure[3]	Ultra160 (16-bit)	Desktop or Rack Shelf (2.52in tall)	-	-	-
4559FHX	IBM 2U Full High Stand Alone SCSI Tape Drive Enclosure[4]	Ultra160 (16-bit)	Desktop or Rack Shelf (4.41in tall)	-	-	-
3503B1X	5.25" FH SCSI Tape Enclosure[5]	Ultra2 (16-bit)	Desktop or 3U Rack	-	-	-
Associated Options						
00N7956	68-pin External Multimode LVD/SE SCSI Terminator	LVD/SE (16-bit)	External	-	-	3510020

Notes:
1. For installation of an internal tape drive into a server, see the appropriate system section.
2. 1U rack-mounted enclosure that supports one or two half-high tape drives. It allows each of these tape drives to be independently attached to a supported xSeries server or both to be daisy-chained to a single server. Includes two 3m 68-pin to.8mm VHDCI external cables.
3. Desktop or rack tape enclosure which supports a single 133mm (5.25in) half-high tape drive. Requires a fixed shelf if installed in a rack (allow an additional 1U for fixed shelf). Includes a power cord and an external 68-pin to 0.8mm VHDCI SCSI cable.
4. Desktop or rack tape enclosure which supports a single 133mm (5.25in) full-high tape drive. Requires a fixed shelf if installed in a rack (allow an additional 1U for fixed shelf). Includes a power cord and an external 68-pin to 0.8mm VHDCI SCSI cable.
5. Requires 68-pin External Multimode LVD/SE SCSI Terminator (P/N 00N7956).
6. Black desktop or 3U rack tape enclosure supports a single 133mm (5.25in) full-high LVD tape device including DLT tape drives. Requires a fixed shelf if installed in a rack (allow additional 1U for fixed shelf). Includes a 90w power supply, cooling fan, external terminator, power cord (country-specific), and 2m 68-pin to 0.8mm external cable.

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Appendix B. External tape and tape library attributes

Installing tape devices on the same bus as other devices may impact performance of those devices.

External tape drives

Table 131. 2U Universal Tape Autoloader

Option Number	Description	Storage Interface	Form Factor	Max. Storage[1]	MB/sec[1]	Data Cartridges (std/max)
33622LX	2U Universal Tape Autoloader [2]	LVD SCSI	2U Rack	8.8TB/17.6TB	288/576	0/22
Related Options						
40K2596	LTO3 Drive Sled option					
40K2597	LTO Magazine option					
24R1922	LTO3 Data Cartridge					
35L2086	LTO Clean Cartridge					

Notes:
1. Data provided is in the syntax of Native/Compressed.
2. 33622LX ships with an external 3m SCSI cable (0.8mm VHDCI -to- 68pin), a 2.8m 100-120v line cord (IEC 320-C13 to NEMA 5-15P), a 2.8m rack power cable, and one cleaning cartridge.

Table 132. 200/400GB 2U LTO Generation 2 Tape Autoloader 3623 Model 2LX

Option Number	Description	Storage Interface	Form Factor	Max. Storage[1]	MB/sec[1]	Data Cartridges (std/max)
36232LX	200/400GB 2U LTO Generation 2 Tape Autoloader 3623 Model 2LX[2]	Ultra160 (16-bit, LVD)	2U Rack	1.6TB/3.2TB	35/70	1/8
Related Options						
71P9159	LTO Gen 2 Data Cartridge (200/400GB) Pack of Five					

Notes:
1. Data provided is in the syntax of Native/Compressed.
2. 3623-2LX ships with an external 3m SCSI cable (0.8mm VHDCI -to- 68pin), a 2.8m 100-120v line cord (IEC 320-C13 to NEMA 5-15P), a 4.3m rack power cable, one data cartridge and one cleaning cartridge.

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Table 133. 1.28TB/2.56TB 36232SX SDLT320 Tape Autoloader

Option Number	Description	Storage Interface	Form Factor	Max. Storage[1]	MB/sec[1]	Data Cartridges (std/max)
36232SX	1.28TB/2.56TB 36232SX SDLT320 Tape Autoloader[2]	Ultra320 (16-bit, LVD)	2U Rack	1.28TB/2.56 TB	16/32	0/8
Related Options						
71P9153	SDLT Data Cartridge Pack of Five					

Notes:
1. Data provided is in the syntax of Native/Compressed.
2. 3623-2SX ships with an external 3m SCSI cable (0.8mm VHDCI -to- 68pin), a 2.8m 100-120v line cord (IEC 320-C13 to NEMA 5-15P), a 4.3m rack power cable and one cleaning cartridge.

Table 134. TotalStorage Ultrium Tape Drive 3580 Model L33

Option Number	Description	Storage Interface	Form Factor	Max. Storage[1]	MB/sec[1]	Data Cartridges (std/max)
3580L3H	TotalStorage Ultrium Tape Drive 3580 Model L33[2]	Ultra320 (16-bit, LVD)	Stand-alone or Rack Mount[3]	400/800GB	80/160	1/1
Related Options						
23R7133	2.5 m VHDCI/HD68 SCSI Cable					
23R7134	4.5 m VHDCI/HD68 SCSI Cable					
23R7135	10.0 m VHDCI/HD68 SCSI Cable					

Notes:
1. Data provided is in the syntax of Native/Compressed.
2. 3580 Model L33 is an Ultrium 3 tape drive and ships with an external 2.5m SCSI cable (0.8mm VHDCI -to- 68pin), one data cartridge and one cleaning cartridge. A power cord does not ship standard with the unit.
3. A 19in rack mount shelf (option 96P1565) is available for placing in a rack.

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Tape libraries

SCSI Interface and Cable Legend

F	Female - External
M	Male - External
68	16-bit, 68-pin High Density connector
0.8	16-bit, 68-pin Very High Density Connection Interface (VHDI) 0.8mm connector
SE	Single-ended SCSI
HVD	High Voltage Differential SCSI
LVD	Low Voltage Differential SCSI

Table 135. SDLT/LTO Modular Tape Library (5U Rack)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
4560SLX	SDLT / LTO Modular Tape Library (5U rack)[2]	LVD	5U Rack	0/30 (LTO only); 0/26 (SDLT only)	0/2	0/2	4.16TB/8.32TB (all SDLT); 3TB/6TB (all LTO)[3]	16/32 (all SDLT); 15/30 (all LTO)[3]
Related Options								
59P6657	Modular Fibre Channel Option[4,5]							
59P6659	Modular LTO Cartridge Magazine Option [3, 5, 6]							
59P6660	Modular SDLT Drive Upgrade Option [3, 5, 7]							
59P6661	Modular SDLT Cartridge Magazine Option [3, 5, 8]							
59P6662	Modular Elevator Link Option[5, 9]							
59P6663	Modular Elevator Link Extension Option [5, 10]							
24P8936	Modular SDLT600 Drive Upgrade Option [3, 5, 11]							
71P9146	LTO Generation 2 Drive Sled [5, 12]							
71P9159	LTO Data Cartridge - Five Pack [13]							
71P9153	SDLT Data Cartridge - Five Pack[14]							

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Notes:

1. Transfer rates are for single SCSI channel configurations. Tape Libraries utilizing split library or dual host configurations may obtain higher rates. Data compression typically provides a 2X improvement in capacity and transfer rate, but since data compression is affected by many factors, actual improvements may be more or less than 2X.
2. SDLT/LTO Tape Library supports either LTO or SDLT (or both if the application software supports mixed media and the drives and magazines are matched). Up to eight units can be stacked. Two magazines and two drive sleds can be installed in each unit. An external LVD SCSI cable with 0.8mm VHDCI connectors at each end ships standard with the library unit. A single 300w power supply with an IEC 320-C13 to NEMA 5-15P low voltage power cord is standard. Attaches to a single host server using a SCSI connection or to either a Fibre Channel switch or single server through a Fibre Channel connection if a Modular Fibre Channel Option is installed. This option ships without a controller.
3. Data transfer speed and capacity are rated separately for LTO and SDLT media. Compressed speed and data capacity may be less than the maximum indicated.
4. Ships with external LVD SCSI cable with 0.8mm VHDCI connector for connection to the tape drive. Requires a short- or long-wave SFP Module (P/N 19K1271, 2) for connection to Fibre Channel cable. Supports three to four drive sleds (or two layers) only. Fibre Channel attachment includes either a single server using a DS4000 Host Bus Adapter or a Fibre Channel switch.
5. Option contains an LVD storage interface.
6. One or two magazines are supported. Up to 15 tape data cartridges (P/N 08L9120) are supported in each magazine. This option ships without a data cartridge. Maximum storage capacity equals 3TB/6TB (native/compressed).
7. Ships with external 0.5m LVD SCSI cable. Supported configurations are none, one or two drives. When a drive sled is not installed, the library unit must be cabled to another unit that contains at least one drive upgrade option. The Modular LTO Drive Upgrade Option includes one LTO Cleaning Cartridge (P/N 08L9124) and the Modular SDLT Drive Upgrade Option includes one SDLT Cleaning Cartridge (P/N 19P4357). This option is shipped without a controller. Data transfer rate equals 16/32 (native/compressed) MB/sec.
8. One or two magazines are supported. Up to 13 tape data cartridges (P/N 35L1119) are supported in each magazine. This option ships without a data cartridge. Maximum storage capacity equals 4.16TB/8.32TB (native/compressed).
9. Required to connect two library units.
10. Required to connect each additional library unit (from three through eight).
11. The SDLT600 Drive Sled installs directly into an available drive bay of the 4560SLX tape library. Maximum storage capacity equals 300GB/600GB (native/compressed). Data transfer rate equals 36/72 (native/compressed) MB/sec. Option includes one cleaning cartridge.
12. Provides a means for mounting LTO Generation 2 (LTO2) SCSI tape drives in the 4560SLX library.
13. Maximum storage capacity equals 200GB/400GB (native/compressed).
14. Maximum storage capacity equals 160GB/320GB (native/compressed).

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Table 136. Magstar MP 3570 Tape Subsystem (PN 3570C21)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
3570C21	Magstar MP 3570 Tape Subsystem [2]	HVD	6U Rack	1/20	2/2	1/2	100GB/ 300GB	7/15
Related Options								
08L6517	3570 Adapter Card Kit [3, 4]							
08L6480	Second "C" Drive for C21[4, 5]							
05H2462	Magstar MP Fast Access Linear Tape Cartridge, B-format [6, 7]							
05H2463	Magstar MP Cleaning Cartridge [6]							
08L6187	Magstar MP Fast Access Linear Tape Cartridge, C-format [6]							

Notes:

1. Transfer rates are for single SCSI channel configurations. Tape Libraries utilizing split library or dual host configurations may obtain higher rates. Data compression typically provides a 2X improvement in capacity and transfer rate, but since data compression is affected by many factors, actual improvements may be more or less than 2X.
2. Includes rack mounting hardware and two power cords (120V and 250V). Models B22 and C22 include an additional two power cords. Option includes a 4.5m cable, controller and cleaning cartridge.
3. Required for Dual Host or Split Library configurations with 3570B2x or 3570C2x containing two drives. Option includes a 4.5m cable and controller.
4. Option contains an HVD storage interface.
5. Required for either dual host or split library operation. Should be installed by a qualified service personnel. Data transfer rate equals 7/15 (native/compressed) MB/sec. Option ships without a controller.
6. Magstar MP Media can be ordered by calling 888-IBM-MEDIA or 888-426-6334 in the US, Canada or Puerto Rico.
7. B-format tape cartridges can be used in either Magstar MP 3570 Model B or C tape drives.

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Table 137. 1U VXA 320 Autoloader (PN 87691VX)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
87691VX	1U VXA-320 Tape Autoloader [1]	LVD SCSI	1U Rack	0/10	1/1	1/1	1.6TB/3.2TB	12/24
Related Options								
24R2137	VXA3 Data Cartridge							
24R2138	VXA Cleaning Cartridge							

Notes:
1. Includes tape library with tape drive, rack mounting hardware, cleaning cartridge, 125V US power cord, rack to PDU power cord, and 3m 0.8mm VHDCI to 68 pin SCSI cable.

Table 138. 4U Universal Tape Library (PN 33614LX)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
33614LX	4U Universal Tape Library [1]	LVD SCSI	4U Rack	0/38	0/2	1/2	15.2TB/30.4TB	576/1152
Related Options								
40K2573	LTO3 Drive Sled Option							
40K2577	LTO Magazine Option							
40K2579	iSCSI Option							

Notes:
1. Includes tape library with tape drive, rack mounting hardware, cleaning cartridge, two 125V US power cords, two rack to PDU power cord, and 3m 0.8mm VHDCI to 68 pin SCSI cable.

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Table 139. IBM System Storage TS3100 Tape Library Express Model L3S (PN 3573L3S)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
3573L3S	IBM System Storage TS3100 Tape Library Express Model L3S [1]	LVD SCSI	2U Rack	1/22	2/2	1/1	8.8TB/ 17.6TB	20/40
Related Options								
23R6999	3573 Right Side Magazine							
23R6998	3573 Rack Mount Kit							
23R7133	2.5 m VHDCI/HD68 SCSI Cable							
23R7134	4.5 m VHDCI/HD68 SCSI Cable							
23R7135	10.0 m VHDCI/HD68 SCSI Cable							
95P2020	Ultrium 3 Data Cartridge (GEN3) 5-Pack							
23R7008	Ultrium Cleaning Cartridge							

Notes:
1. Includes tape library with tape drive, rack mounting hardware, one data cartridge, one cleaning cartridge, 125V US power cord, and rack to PDU power cord.

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Table 140. IBM System Storage TS3100 Tape Library Express Model F3S (PN 3573F3S)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
3573F3S	IBM System Storage TS3100 Tape Library Express Model F3S [1]	4Gbps Fiber	2U Rack	1/22	2/2	1/1	8.8TB/ 17.6TB	20/40
Related Options								
23R6999	3573 Right Side Magazine							
23R6998	3573 Rack Mount Kit							
23R7136	5.0 m LC/LC Fibre Cable							
23R7137	13.0 m LC/LC Fibre Cable							
23R7138	25.0 m LC/LC Fibre Cable							
23R7140	LC-SC Fibre Cable Interposer							
95P2020	Ultrium 3 Data Cartridge (GEN3) 5-Pack							
23R7008	Ultrium Cleaning Cartridge							

Notes:
1. Includes tape library with tape drive, rack mounting hardware, one data cartridge, one cleaning cartridge, 125V US power cord, and rack to PDU power cord.

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Table 141. IBM System Storage TS3200 Tape Library Express Model L3H(PN 3573L3H)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
3573L3H	IBM System Storage TS3200 Tape Library Express Model L3H[1]	LVD SCSI	4U Rack	1/44	4/4	1/2	17.6TB/ 35.2TB	40/80
Related Options								
23R7260	3573 Ultrium 3 LVD SCSI Tape Drive Sled							
23R6999	3573 Right Side Magazine							
23R6998	3573 Rack Mount Kit							
23R7008	Ultrium Cleaning Cartridge							
23R7133	2.5 m VHDCI/HD68 SCSI Cable							
23R7134	4.5 m VHDCI/HD68 SCSI Cable							
23R7135	10.0 m VHDCI/HD68 SCSI Cable							
95P2020	Ultrium 3 Data Cartridge (GEN3) 5-Pack							
23R7262	3573 Additional Power Supply							

Notes:

1. Includes tape library with tape drive, rack mounting hardware, one data cartridge, one cleaning cartridge, 125V US power cord, and rack to PDU power cord.

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Table 142. IBM System Storage TS3200 Tape Library Express Model F3H(PN 3573F3H)

Part Number	Description	Storage Interface	Form Factor	Data Cartridges (Std/Max)	Cartridge Mags (Std/Max)	Quantity of Drives (Std/Max)	Max Storage - Native/Compressed	MB/sec - Native/Compressed[1]
3573F3H	IBM System Storage TS3200 Tape Library Express Model F3H[1]	LC Fiber	4U Rack	1/44	4/4	1/2	17.6TB/ 35.2TB	40/80
Related Options								
23R7261	3573 Ultrium 3 Fibre Tape Drive Sled							
23R6999	3573 Right Side Magazine							
23R6998	3573 Rack Mount Kit							
23R7008	Ultrium Cleaning Cartridge							
23R7136	5.0 m LC/LC Fibre Cable							
23R7137	13.0 m LC/LC Fibre Cable							
23R7138	25.0 m LC/LC Fibre Cable							
95P2020	Ultrium 3 Data Cartridge (GEN3) 5-Pack							
23R7262	3573 Additional Power Supply							

Notes:
1. Includes tape library with tape drive, rack mounting hardware, one data cartridge, one cleaning cartridge, 125V US power cord, and rack to PDU power cord.

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Appendix C. UPS runtime estimate (minutes)

Steps to determine UPS runtimes and suitable UPS for desired configurations:

1. Using the 'Power Load Data' table, sum the load (watts) of all devices in the configuration. Use either Maximum Load for minimum runtimes, or Typical Load for typical runtimes.
2. Using the 'Runtimes' table, locate the configuration's total load calculated in step 1.
3. Select the most appropriate UPS model to achieve the desired runtime.

Note: If the configuration's total load is greater than the entries in the 'Runtimes' table, split the load across two or more UPS units.

Table 143. Power Load Data

Server	Number of Power Cords (Std/Max)	Watts Load (Typical/Max)[1]
xSeries 206m[2]	2/2	246/352
xSeries 226 (single power supply)[2]	1/1	495/707
xSeries 226 (redundant power supplies)[2]	2/2	480/685
xSeries 236[2]	1/2	625/893
xSeries 260 (two power supplies)[2]	2/3	679/970
xSeries 260 (three power supplies)[2]	2/3	1288/1840
xSeries 306m[2]	1/1	350/500
xSeries 306[2]	1/1	300/430
xSeries 336[2]	1/2	385/550
xSeries 346[2]	1/2	581/830
System x3850 and xSeries 366[2]	1/2	1103/1575
System x3950 and xSeries 460[2]	2/2	1103/1575
eServer 326m[2]	1/1	280/400
x3400 entry[2]	1/1	463/662
x3550[2]	1/2	490/700
x3650[2]	1/2	679/970
x3800 (two power supplies)[2]	2/3	679/970
x3800 (three power supplies)[2]	2/3	1288/1840
x3850[2]	2/2	1103/1575
x3950[2]	2/2	1103/1575
BladeCenter (two 2000W power supplies)[2, 3]	2/4	1855/2650
BladeCenter (four 2000W power supplies)[2, 3]	4/4	3710/5300
BladeCenter H (two 2900W power supplies)[2, 3]	2/2	3325/4750
BladeCenter H (four 2900W power supplies)[2, 3]	4/4	6650/9500
Other Devices		
EXP400 Storage Expansion Unit (17331RU)[2]	2/2	310/440

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Table 143. Power Load Data (continued)

Server	Number of Power Cords (Std/Max)	Watts Load (Typical/Max)[1]
DS4100 Disk System (1724100)[2]	2/2	275/390
DS4300 Disk System (172260U)[2]	2/2	390/557
DS4400 Disk System (17421RU)[2]	2/2	275/390
DS4500 Disk System (174290U)[2]	2/2	275/390
DS4000 EXP100 Storage Expansion Unit (171010U)[2]	2/2	245/350
SAN Fibre Channel Switch, 16-Port (2005H16)	2/2	140/200

Notes:
1. This table represents general guidelines for selecting the appropriate UPS based on minimum and typical runtime estimates. A 'maximum configuration' load will result in 'minimum' UPS runtime. 'Typical' loads are based on a production system running at approximately 70% of maximum capacity (based on the power delivered to the device from the power source, i.e., 70% of the value provided as a maximum equals the rating of the power supply). The 'typical' loads represent a more likely configuration; therefore, they provide a more likely estimate of runtime. The values listed as typical generally are equal to the rating of the power supply. Since power supplies operate at 70% of load, the system power supplies are actually operating at 70% of the values listed, though the power required from the source is what is listed. Customer environments are unique and are unlikely to be precisely represented by any of the specific entries in the table.
2. Power-Factor Corrected (PFC) power supply.
3. Use with IBM UPS7500X or UPS10000X only.

Total Configuration runtime estimator

Table 144. IBM UPS750T, 1000T, 1500T Runtimes[1]

	Tower		
	UPS750T	UPS1000T	UPS1500T
Total Load (Watts)	**Runtime (Minutes)**	**Runtime (Minutes)**	**Runtime (Minutes)**
50	105	224	269
100	57	127	157
200	28	64	80
300	18	41	51
400	13	29	37
500	10	23	28
600	--	18	22
700	--	15	18
800	--	12	15
900	--	11	13
1000	--	9	11
1200	--	--	9
1400	--	--	7

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Notes:

1. Data provided by APC.

Table 145. IBM UPS750T, 1000T, 1500T Attributes

	Tower		
Low Voltage Versions (US)	**UPS750TLV**	**UPS1000TLV**	**UPS1500TLV**
New Order Part Number	**2130R1X**	**2130R3X**	**2130R5X**
(Old Order Number)	(21301TX)	(21303TX)	(21305TX)
High Voltage Versions (Int'l)	**UPS750THV**	**UPS1000THV**	**UPS1500THV**
New Order Part Number	**2130R2X**	**2130R4X**	**2130R6X**
(Old Order Number)	(21302TX)	(21304TX)	(21306TX)
Japan Versions	**UPS750TJV**	**UPS1000TJV**	**UPS1500TJV**
New Order Part Number	**2130R7X**	**2130R8X**	**2130R9X**
(Old Order Number)	(21307TX)	(21308TX)	(21309TX)
UPS Attributes			
Communications Links to Servers	Serial/USB/Enet	Serial/USB/Enet	Serial/USB/Enet
Color	black	black	black
APC SmartSlot	one	one	one
Int'l Models			
50 or 60Hz, single phase, VAC:	220-240(xxx)[1,2]	220-240(xxx)[1,2]	220-240(xxx)[1,2]
10-Amp, IEC 320-C13 (Device) receptacles	6	8	8
16-Amp, IEC 320-C19 (PDU) receptacles	-	-	-
Receptacles (NEMA L5-20R)	-	-	-
Line Cord Length, NEMA Plug	-	-	-
Line Cord Receptacle (IEC 320-)	C14[3]	C14[3]	C14[3]
Low Voltage Versions (US and Japan Models)			
50 or 60Hz, single phase, VAC:	100-127(120)[1]	100-127(120)[1]	100-127(120)[1]
Receptacles (NEMA 5-15R)	6	8	8
Receptacles (NEMA L5-20R)	-	-	-
10-Amp, IEC 320-C13 (Device) receptacles	-	-	-
16-Amp, IEC 320-C19 (PDU) receptacles	-	-	-
Line Cord Length, NEMA Plug	6ft, 5-15P	6ft, 5-15P	6ft, 5-15P
Line Cord Receptacle (IEC 320-)	-	-	-

Notes:

1. How-to-Read example for 200-240(208): Input VAC is 200-240 as is the UPS output when electric service is active. When electric service is interrupted and the UPS is on battery, the UPS output is 208 VAC.

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2. Battery output may be set to 220, 225, 230 or 240 VAC.
3. Country-specific line cords available as options.

Table 146. IBM UPS3000LV Runtimes[1]

	Number of Battery Packs				
	+0	+1	+2	+3	+4
Total Load (Watts)	**Runtime (Hours / Minutes)**	**Runtime (Hours/ Minutes)**	**Runtime (Hours / Minutes)**	**Runtime (Hours / Minutes)**	**Runtime (Hours / Minutes)**
200	1/3	5/16	7/57	11/15	14/34
300	55	4/35	7/0	9/55	12/50
400	48	4/1	6/6	8/39	11/12
500	42	3/31	5/19	7/31	9/44
600	36	3/3	4/31	6/24	8/17
700	31	2/35	3/50	5/26	7/2
800	26	2/12	3/20	4/43	6/6
900	23	1/55	2/51	4/2	5/14
1000	19	1/38	2/23	3/23	4/23
1100	16	1/22	2/4	2/56	3/48
1200	14	1/11	1/48	2/33	3/19
1300	12	1/2	1/35	2/14	2/54
1400	10	54	1/20	1/54	2/28
1500	9	46	1/11	1/41	2/10
1600	8	41	1/8	1/37	2/5
1700	8	40	1/8	1/37	2/5
1800	8	40	1/8	1/37	2/5
1900	7	39	1/0	1/25	1/50
2000	7	35	1/0	1/25	1/50
2100	7	33	1/0	1/25	1/50

Notes:
1. Data provided by Eaton.

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Table 147. IBM UPS3000HV Runtimes[1]

	Number of Battery Packs				
	+0	+1	+2	+3	+4
Total Load (Watts)	Runtime (Hours / Minutes)	Runtime (Hours/ Minutes)	Runtime (Hours / Minutes)	Runtime (Hours / Minutes)	Runtime (Hours / Minutes)
200	1/3	4/38	9/5	12/48	16/42
300	55	4/5	8/0	11/16	14/42
400	48	3/33	6/59	9/59	12/50
500	42	3/6	6/4	8/33	11/10
600	36	2/38	5/10	7/17	9/30
700	31	2/14	4/23	6/11	8/4
800	26	1/56	3/48	5/22	7/0
900	23	1/40	3/16	4/36	6/0
1000	19	1/23	2/44	3/51	5/2
1100	16	1/12	2/22	3/20	4/22
1200	14	1/3	2/4	2/54	3/48
1300	12	55	1/48	2/33	3/20
1400	10	47	1/32	2/10	2/50
1500	9	45	1/28	2/4	2/42
1600	9	41	1/20	1/53	2/28
1700	8	40	1/18	1/50	2/24
1800	8	40	1/18	1/50	2/24
1900	7	35	1/8	1/36	2/6
2000	7	35	1/8	1/36	2/6
2100	7	33	1/5	1/32	2/0
2200	6	30	58	1/22	1/48
2300	6	30	58	1/22	1/48
2400	6	30	58	1/22	1/48
2500	6	26	51	1/12	1/34
2600	5	25	49	1/9	1/30
2700	5	25	49	1/9	1/30

Notes:
1. Data provided by Eaton.

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Table 148. IBM UPS3000LV and HV Attributes

		Rack Mount or Tower		
	Version	UPS3000LV	UPS3000HV	UPS Extend Run Battery Pack
	Order Part Number	**21301RX**	**21302RX**	**40K9630**
UPS Attributes				
Communications Links to Servers		Serial/USB/Enet	Serial/USB/Enet	-
Color		black	black	black
EIA Height		2U	2U	2U
Versions		**Low Voltage**	**High Voltage**	
50 or 60Hz, single phase, VAC:		120(120)[1]	200-240(xxx)[1, 2]	-
Maximum power capacity (watts)		2400	2850	-
10-Amp, IEC 320-C13 (Device) receptacles		6[5]	7[5]	-
16-Amp, IEC 320-C19 (PDU) receptacles		-	1[3]	-
Receptacles (NEMA L5-20R)		1[4]	-	-
Attached Line Cord Length, NEMA Plug		9ft, L5-30P	-	-
Line Cord Receptacle (IEC 320-)		-	C20[6]	-

Notes:
1. How-to-Read example for 200-240(208): Input VAC is 200-240 as is the UPS output when electric service is active. When electric service is interrupted and the UPS is on battery, the UPS output is 208 VAC.
2. Battery output may be set to 220, 225, 230 or 240 VAC.
3. One 2m PDU jumper cable ships with the UPS for attachment from the IEC 320-C19 receptacles to a Power Distribution Units (PDUs) with C20 inlets.
4. Includes L5-20P to L5-15R adapter cable.
5. Four IEC power cables are provided to attach devices to the UPS outlets, which are 2m long with IEC 320-C13/C14 connectors.
6. Country-specific line cords are available as options.

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Table 149. IBM UPS7500XHV, 10000XHV Runtimes[1]

	Number of Battery Packs			
	+0	**+1**	**+2**	**+4**
Total Load (Watts)	**Runtime (Hours/Minutes)**	**Runtime (Hours/Minutes)**	**Runtime (Hours/Minutes)**	**Runtime (Hours/Minutes)**
200	4/6	7/36	11/54	20/54
300	3/6	5/48	9/6	16/0
400	2/30	4/36	7/18	12/48
500	2/6	3/54	6/6	10/42
600	1/48	3/18	5/12	9/12
700	1/30	2/54	4/30	8/0
800	1/18	2/30	4/0	7/0
900	1/12	2/18	3/36	6/12
1000	1/6	2/0	3/12	5/42
1200	55	1/42	2/42	4/48
1400	47	1/30	2/18	4/6
1600	41	1/12	2/0	3/36
1800	36	1/6	1/48	3/12
2000	32	1/0	1/36	2/54
3000	19	39	1/0	1/48
4000	13	28	46	1/18
5000	10	21	35	1/0
6000	7	16	28	52
7000	5	13	23	44
8000	4	11	20	37
Note: UPS7500 is rated for up to 6000 total watts; UPS10000 is rated for up to 8000 total watts.				

Notes:

1. Data provided by APC.

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Table 150. IBM UPS7500XHV, 10000XHV Attributes

		Tower or Rack Mount		
	Version	**UPS7500XHV**	**UPS10000XHV**	**UPS Extend Run Battery Pack**
	New Order Number	**21303RX**	**21304RX**	**39Y8857**
	(Old Order Number)	(21306RX)	(21308RX)	(25R5582)
UPS Attributes				
Communications Links to Servers		Serial/USB/Enet	Serial/USB/Enet	-
Color		black	black	black
EIA Height		6U	6U	3U
Versions				
50 or 60Hz, single phase, VAC:		200-240(xxx) [1, 2]	200-240(xxx)[1, 2]	--
Maximum power capacity (watts)		6000	8000	--
10 Amp, IEC 320-C13 receptacles		--	--	--
16 Amp, IEC 320-C19 receptacles		4[3, 4]	4[3, 4]	--
Line Cord Receptacle		terminal block[5]	terminal block[5]	--

Notes:
1. How-to-Read example for 200-240(208): Input VAC is 200-240 as is the UPS output when electric service is active. When electric service is interrupted and the UPS is on battery, the UPS output is 208 VAC.
2. Battery output may be set to 208, 220, 225, 230 or 240 VAC.
3. Four IEC power cables are provided to attach devices or PDUs to the UPS outlet, which are 2m long with IEC 320-C19/C20 connectors.
4. Each outlet is protected by a 15amp circuit breaker.
5. Requires electrician to connect directly to the terminal block inlet.

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Appendix D. System management overview

IBM system management solutions allow you to run your business-critical applications using innovative hardware technology that prevents most outages and recovers rapidly from the few that do occur. This technology makes xSeries simpler to service and easier to manage.

This section shows the available range of standard and optional system management processors and describes the features and configuration process for each. This section further demonstrates how these service processors can be interconnected to form a communication network for alerting and monitoring a wide range of system functions and hardware conditions.

Legend

ISMP	Integrated System Management Processor
BMC	Baseboard Management Controller
RSA II	Remote Supervisor Adapter II
RSA II SL	Remoter Supervisor Adapter II SlimLine
ASMIC	Advanced System Management Interconnect[1]

Notes:

1. An advanced system management interconnect network is for interconnectivity of legacy service processors and/or RSA IIs with one RSA II serving as the gateway to the customer LAN routing alerts and management functions. Service processors that can support an ASM network are: Remote Supervisor Adapter II, Remote Supervisor Adapter, Integrated Systems Management Processor, Advanced Systems Management PCI Adapter and the Advanced Systems Management Processor.

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System management support by server

Table 151. Support by Server

	ISMP[1]	BMC[1]	RSAII[2]	RSAII SL[3]	ASMIC
Server					
x206	-	-	optional	-	optional
x226	-	-	optional	-	optional
x236	-	standard	-	optional	-
x306	-	-	optional	-	optional
x336	-	standard	-	optional	-
x343[4]	-	-	-	-	-
x346	-	standard	-	optional	-
x3850 and x366	-	standard	-	optional	-
e326	-	standard	-	-	-

Notes:

1. This service processor is integrated into the systemboard.
2. This service processor is a PCI adapter.
3. This service processor is a pluggable module with a dedicated connector.
4. x343 has its own integrated service processor which is not compatible with other service processors.
5. ASM interconnect requires a breakout cable contained in cable kit option 03K9309.
6. x445 uses the RSAII-EXA and not the RSAII.
7. x455 ships standard with the RSA adapter which is no longer available as an option.

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System management functional comparison

Table 152. Functional Comparison

	ISMP	BMC	RSA II	RSAII SL
Feature/Function				
Monitoring & Alerting				
In-band alerting	yes[1]	yes	yes	yes
Remote out-of-band alerting	yes[2]	yes	yes	yes
Out-of-band environmental monitoring	yes[2]	yes	yes	yes
System voltage monitoring	yes	yes	yes	yes
Battery voltage monitoring	no	yes	yes	yes
System temperature monitoring	yes	yes	yes	yes
Fan speed monitoring	yes	yes	yes	yes
Fan speed control	yes	yes	yes	yes
Fan tachometer monitoring	yes	yes	yes	yes
Power good signal monitor	yes	yes	yes	yes
NMI detection	yes	yes	yes	yes
SMI detection and generation	yes	yes[3]	yes	yes
Auto server-restart watchdog alert	yes	yes	yes	yes
Management				
System reset control	yes	yes	yes	yes
Remote system power control	yes[2]	yes	yes	yes
Text console redirection	no	yes	yes	yes
Remind button detection	yes	yes[3]	yes	yes
System LED control (power, disk, alert)	yes	yes	yes	yes
Lightpath LED control	yes	yes	yes	yes
Other				
RS-485 Interconnect network	yes	no	yes	no

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Table 152. Functional Comparison (continued)

	ISMP	BMC	RSA II	RSAII SL
Feature/Function				
Remote access via LAN/serial	yes[4]	yes	yes	no
Serial-over-LAN	no	yes	yes	no

Notes:

1. Requires IBM Director Agent
2. Available via the ASM interconnect or from customer LAN with RSAII installed.
3. Not available on e326.
4. Requires the addition of a RSAII to serve as a gateway to customer LAN.

Advanced system management examples

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

1. Sample ASM Network

The ASM interconnect network is logically and distinctly separate from the customer LAN. Thus, the ASM-nodes are not required to be connected into the LAN. A system with the RSAII or the RSAII-EXA installed will serve as the gateway to the customer LAN and the Director server.

Legend

RSAII-host	System which has the RSAII or RSAII-EXA adapter installed that will be serving as the gateway for the ASM network to the customer LAN for management.
ASM-node	ASM-node=all systems in the ASM network excluding the RSAII-host.
RSA	Refers to RSAII or RSAII-EXA

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Cabling rules:

1. Connect the ASM breakout cable to the RSA adapter in the RSAII-host.
2. Using a standard ethernet cable(RJ45), connect one ASM port of RSAII-host's ASM breakout cable to an ASM port of the first ASM-node.
3. Using standard ethernet cables(RJ45), connect remaining ASM port of first ASM-node to an ASM port of the second ASM-node and continue daisy-chaining all remaining ASM-nodes in the same manner. The total ASM interconnect network may be no longer than 91.4m (300ft).
4. Using a standard ethernet cable(RJ45), connect the ethernet port of the RSAII-host's RSA adapter to the customer LAN for ASM management of the ASM network from a remote management console.
5. An Advanced System Management Interconnect Cable Kit may be required. See the Support by Server Table for more information.

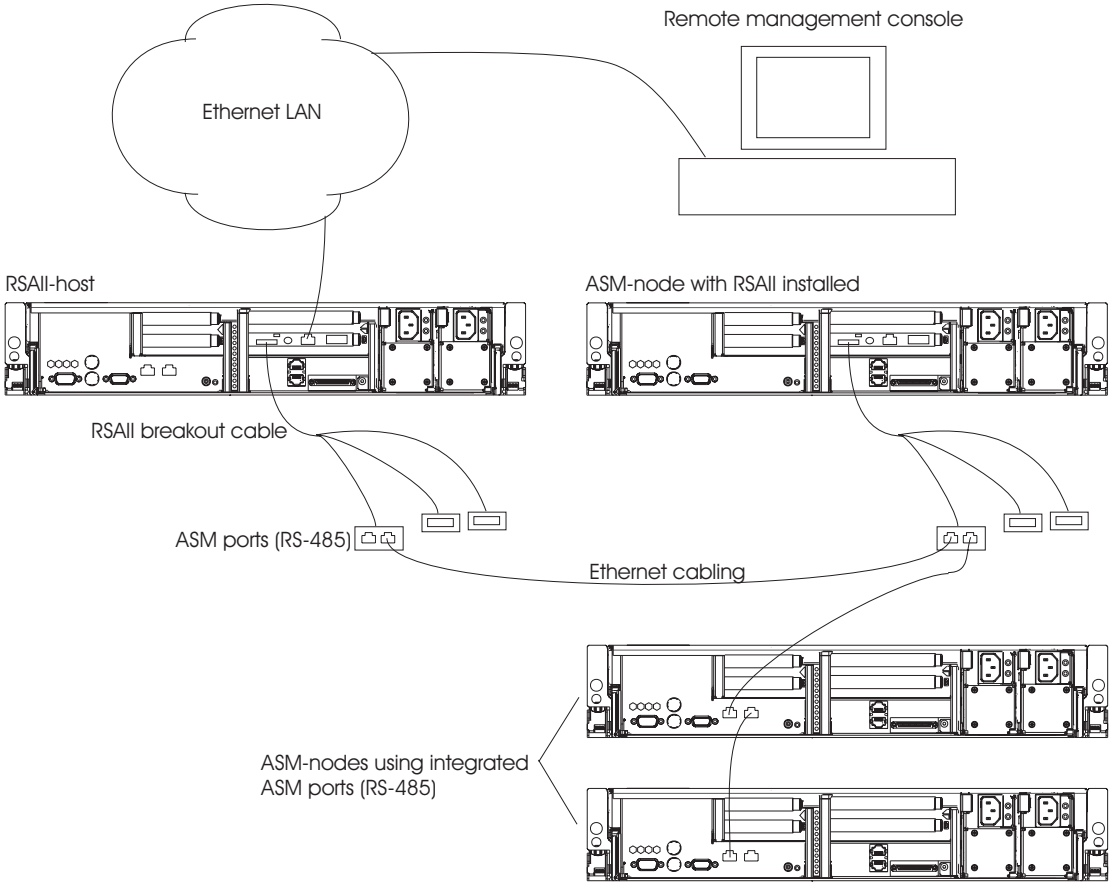

Figure 103. Sample ASM Network

Note: RSAII-SlimLine and BMC management do not support a dedicated ASM network.

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2. RSAII-SlimLine and BMC Management

Note: RSAII-SlimLine and BMC management do not support a dedicated ASM network. Management access is via the Customer LAN using the appropriate ASM ethernet port.

Note: BMC access is shared with a designated system ethernet port. The RSAII-SlimLine access is through a separate, dedicated ethernet port.

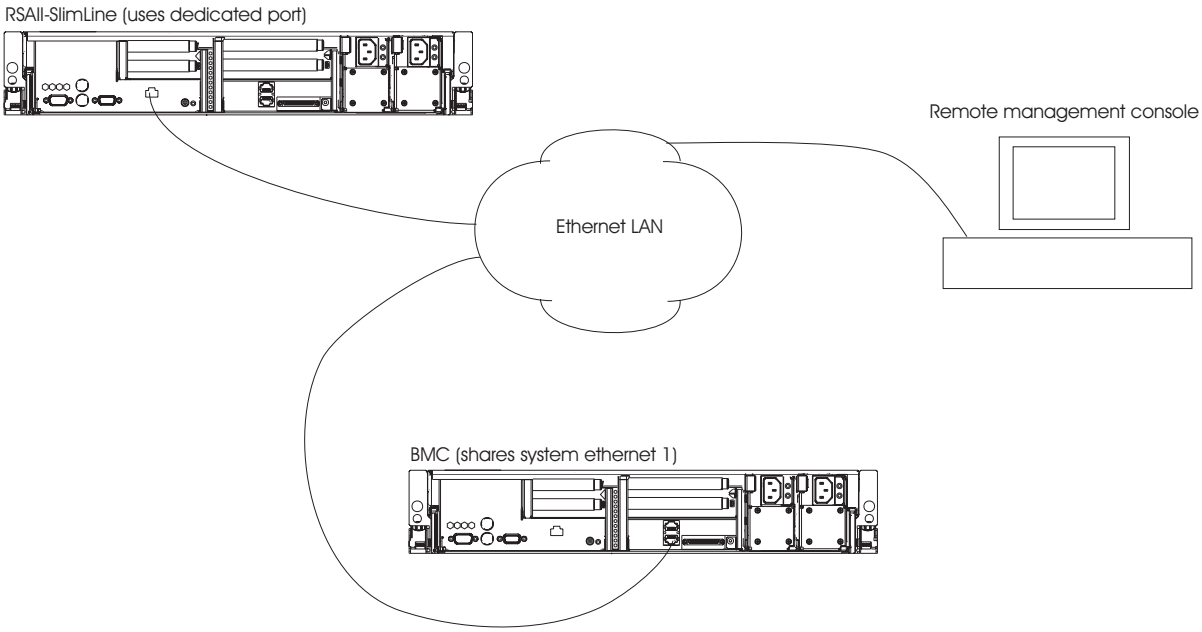

Figure 104. Sample RSAII-SlimLine and BMC Management

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3. Advanced System Management Scenario

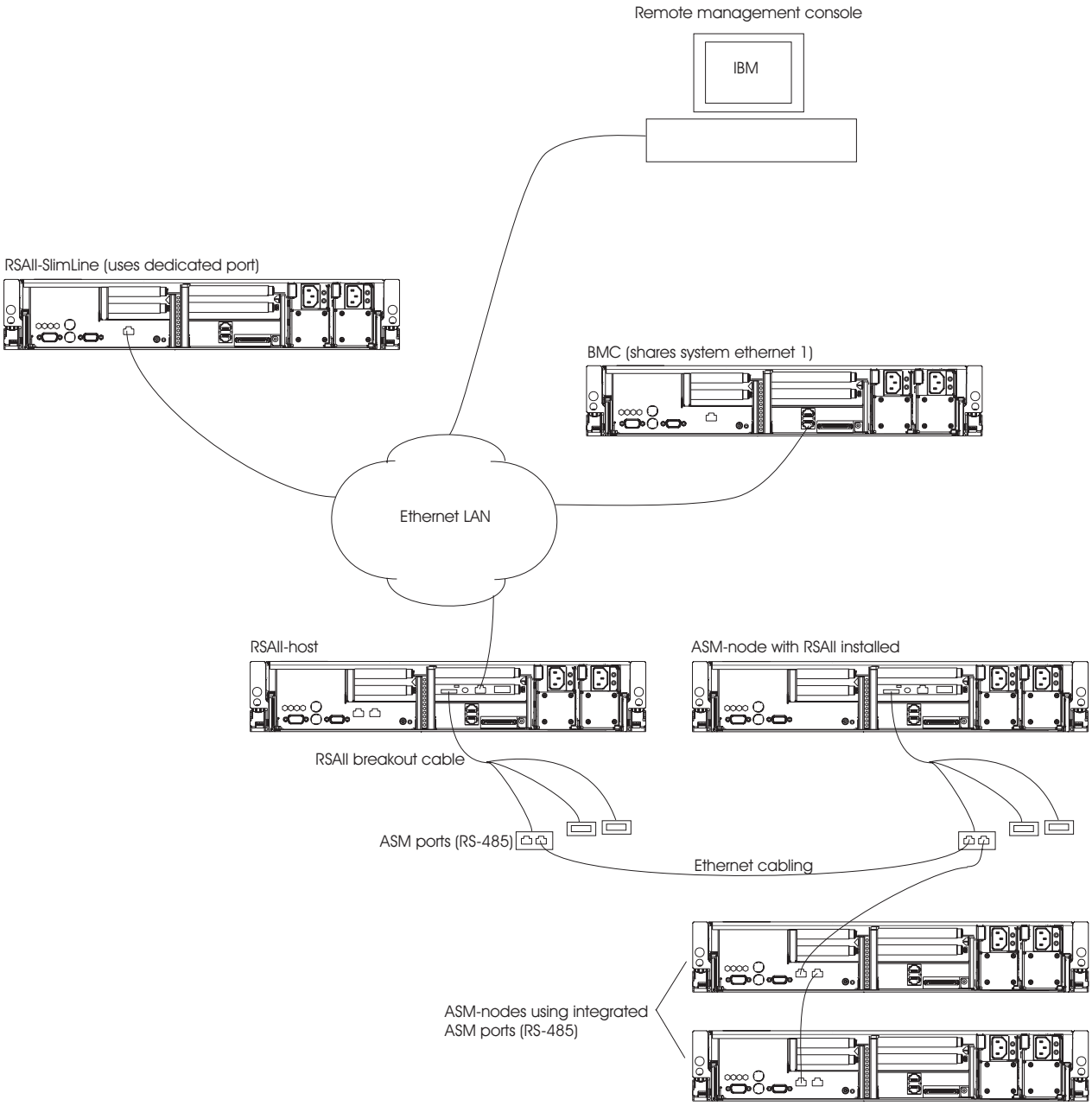

Figure 105. Advanced System Management Scenario

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Appendix E. xSeries I/O option attributes

Option Number	Description	Adapter Length	PCI Support[1]	Low-profile Capable	Hot-Plug[2]	PCI Voltage Key	MHz[1]
	Storage Controllers						
39R8793	ServeRAID-6i+ Controller[3]	Half	64-bit	-	-	3.3	133[4]
39R8816	ServeRAID-6M Controller (256MB Cache)[5]	Full	64-bit	-	-	3.3	133[4]
39R8815	ServeRAID-6M Controller (128MB Cache)[5]	Full	64-bit	-	-	3.3	133[4]
39R8800	ServeRAID-7k Controller[6]	-	64-bit	-	-	-	100
39R8805	ServeRAID-7t SATA RAID Controller[7]	Half	64-bit	X	-	Universal	66
39R8729	ServeRAID-8i Controller		64-bit	-	-	3.3	133
71P8594	Single Channel Ultra320 SCSI Controller[8]	Half	64-bit	X	-	Universal	133
13N2249	Ultra320 SCSI Controller 2	-	64-bit	X	X	Universal	133
	Fibre Storage Controllers and Options[9]						
24P0960	DS4000 Host Bus Adapter[10]	Half	64-bit	X	X	Universal	133[4]
174290U	FAStT900 Storage Server (US line cord)	-	-	-	-	-	-
17421RU	FAStT700 Fibre Channel Storage Server	-	-	-	-	-	-
172260U	FAStT600 Storage Server (US line cord, English pubs)	-	-	-	-	-	-
	Networking						
22P4501	Intel Pro/100S Desktop Adapter[11]	Half	32-bit	-	-	Universal	33
22P6501	Pro/1000 T Desktop Adapter by Intel[12]	Half	32-bit	-	-	Universal	33
31P9601	PRO/1000 MT Server Adapter by Intel[12]	Half	64-bit	X	X	Universal	133[5]
73P3601	iSCSI Server Adapter	Half	64-bit	-	X	Universal	66
22P7801	NetXtreme 1000 SX Fiber Ethernet Adapter[14]	Half	64-bit	X	X	Universal	133[6]
31P6301	NetXtreme 1000 T Ethernet Adapter (copper)[12, 14]	Half	64-bit	X	X	Universal	133[6]
31P6401	NetXtreme 1000 T Dual Port Ethernet Adapter (copper)[12, 14]	Half	64-bit	X	X	Universal	133[6]
73P3501	NetXtreme 1000 Express Ethernet Adapter[10]	Half	PCI E 1X	-	X	3.3v	-
73P4101	NetXtreme 1000 T+ Ethernet Adapter	Half	64-bit	-	X	Universal	133
73P4001	NetXtreme 1000 SX+ Fiber Ethernet Adapter[10]	Half	64-bit	-	X	Universal	133

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Option Number	Description	Adapter Length	PCI Support[1]	Low-profile Capable	Hot-Plug[2]	PCI Voltage Key	MHz[1]
	System Management[13]						
03K9309	Advanced System Management Interconnect Cable Kit[14]	-	-	-	-	-	-
09N7585	Remote Supervisor Adapter[15]	Half	32-bit	-	-	Universal[16]	33
59P2984	Remote Supervisor Adapter II[17]	Half	32-bit	-	-	Universal[16]	66
39Y9566	Remote Supervisor Adapter II SlimLine[18]	-	-	-	-	-	-
	Communications						
1519100	IXA Adapter[19]	Full	64-bit	-	-	3.3v	66
22P5888	PCI Parallel Port Adapter (low profile)	Half	32-bit	-	-	5	33
	Remote I/O Expansion						
-	-	-	-	-	-	-	-
	Related I/O Cables						
02R2068	Ultra320 Internal Single-drop 24in LVD SCSI Cable[20]	-	-	-	-	-	-
32P8164	External SCSI Interface Kit[21]	-	-	-	-	-	-
10K3661	USB to Serial Adapter[22, 23]	-	-	-	-	-	-

Notes:

1. Adapters rated at a lower frequency than the slots in which they are installed will reduce the bus to the frequency of the slowest adapter. 133MHz PCI-X adapters are backward compatible with 33/66MHz, 64-bit PCI-based servers.
2. Hot-plug feature only supported in systems with Active PCI slots. For network operating system support, point your browser to www.pc.ibm.com/us/compat.
3. ServeRAID-6i+ Controller is a PCI-X adapter supporting both Ultra320 and Ultra160 HDDs in a dedicated or mixed environment, allowing each HDD to perform at rated capacity. The adapter installs into limited PCI slots and converts both channels of the integrated SCSI controller to RAID in conjunction with the LSI 1030 chipset. Both standard and the optional SCSI HDD backplanes as well as internal tape drives and external SCSI devices cabled directly to the onboard controller connectors. Supports up to 1,064MB/s data transfers across the PCI bus with 128MB ECC SDRAMM write-back cache with battery backup. Supports RAID levels 0, 1, 10, 5, 50 and 1E. The option includes brackets for installation in both low-profile and standard PCI slots. Internal and external tape drives are supported by ServeRAID-6i+ only when a second channel on the integrated controller is available and the RAID configuration designates the second channel as a conventional SCSI bus. See system sections for supported tape drives.
4. This adapter is designed using PCI-X technology.
5. ServeRAID-6M (P/Ns 39R8816, 39R8815) are PCI-X adapters powered by a 600MHz Intel xScale processor, providing 256MB or 128MB of ECC SDRAM battery-backed cache. The dual-channel Ultra320 controller includes two internal 68-pin connectors and two external 0.8mm VHDCI connectors, supporting up to 14 HDDs on each channel at data transfer rates of up to 1,064MB/s. Supports RAID levels 0, 1, 10, 1EO, 5, 50 and 5EE with both Ultra160 and Ultra320 HDDs.
6. ServeRAID-7k is available for select systems, installs into a dedicated slot and does not consume a PCI slot. It works in conjunction with the integrated SCSI controller providing the following RAID levels: 0, 00, 1, 10, 1E, 1E0, 5 and 50 with 256MB of ECC DDR1 battery-backed cache.
7. ServeRAID-7t is a low-profile capable, four-port SATA controller supporting RAID levels 0, 1, 5 and 10. All ports are internal. ServeRAID-7t is a universal PCI 2.2 compliant adapter powered by Intel's 400MHz 80302 I/O processor and has 64MB of cache.

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8. Single Channel Ultra320 SCSI Controller (P/N 71P8594) provides a single channel with one 68-pin internal connector, a four-drop multimode terminated LVD SCSI cable and one external 0.8mm VHDCI connector. Only one of the two connectors may be utilized. Hardware is included in the option to support either low-profile (2U) or full-size (3U) installations.
9. See Fibre Channel Solutions Overview section for additional configuration information.
10. The option includes brackets for installation in both low-profile and full-size PCI slots.
11. For use of the Alert on LAN 2 features in the Desktop adapter, the system must be enabled with IBM-compatible Alert on LAN 2 hardware and software components. Use of the Wake on LAN function requires a PCI 2.2 compatible system that supports Wake on LAN and provides auxiliary 3.3v power through the PCI bus.
12. Use of the Wake on LAN function requires a PCI 2.2 compatible system that supports Wake on LAN and provides auxiliary power through the PCI bus.
13. Up to 24 Integrated System Management Processors or Remote Supervisors Adapters may be interconnected with an aggregate connection length of no more than 91.4m (300ft). This interconnect network of 24 devices may also include a maximum of 12 Advanced System Management Processors or advanced System Management PCI Adapters. A customer-supplied Cat5 cable is required for each interconnection.
14. When a standard Remote Supervisor Adapter or ASM PCI Adapter is installed in a dedicated PCI slot with an external connector, support for connection to other servers in an ASM interconnect network requires an optional Advanced System Management Interconnect Cable Kit (P/N 03K9309). Where applicable, direct connection to the RXE drawer management controller in an RXE-100 Remote Expansion Enclosure is supported through a standard Interconnect Management Cable Kit with 3.5m cable (8m optional cable is available). Support is provided through a single LAN or modem connection.
15. Remote Supervisor Adapter (P/N 09N7585) includes an adapter card, 20-pin ribbon cable, AC power adapter, power cable, power cable for UPS attachment, single pigtail cable, two RS-485 terminators and 1ft Cat5 cable.
16. Although the voltage key of this adapter is universal (compatible with 3.3 or 5v slots), the BIOS of each system limits installation to a specific PCI slot.
17. Remote Supervisor Adapter II (P/N 59P2984) includes an internal 20-pin ribbon cable for connection to the system planar, an interconnect cable, a 56w AC power adapter, an intra-rack power cable and a country-specific wall power cord. External connectors include an RS230 (9-pin) serial port, 10/100 base T Ethernet port (RJ-45), interconnect port (RJ-11) and power connector. The interconnect cable includes a single RJ-11 connector and dual RJ-48 ports. Supports an interconnect network of up to 24 RSAs or ISMPs with aggregate cable connection length of 300ft (91.4m) or less. No more than 12 ASMPs are supported in an interconnect network. RJ-45 bus is self-terminating, i.e., terminators are not required for the interconnect bus.
18. Remote Supervisor Adapter II SlimLine is similar to RSA II and is available for select systems. It is not supported on an ASM interconnect network. The RSA II SlimLine installs into a dedicated slot on the systemboard and does not consume a PCI slot. An external AC adapter is not required as this card uses standby power from the system's power.
19. Some xSeries servers support the IXA Adapter (P/N 1519100) for connection to iSeries models. Refer to system sections for PCI slot restrictions.
20. Required to connect RAID controllers to the hot-swap backplane in x235 or x345.
21. Required to enable external 0.8mm VHDCI connectors on some systems.
22. When supported, this option can be used for certain external device connections when only USB ports rather than serial or parallel ports are present on a system chassis.
23. Available only in the US.

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Appendix F. BladeCenter® power module upgrade guidelines

This *Technical Update* contains information that will help you determine whether to upgrade the power modules in your IBM BladeCenter® Type 8677 unit when installing IBM BladeCenter blade servers or options.

Note: These guidelines apply to an IBM BladeCenter Type 8677 unit. These guidelines do not apply to an IBM BladeCenter T Type 8720 or 8730 unit.

The latest version of the BladeCenter management module firmware includes new features to assist you in managing the power load of the chassis. The new features (Fuel Gauge and Power Management Policy) provide additional indication on whether the power supply in your system configuration supports full redundancy and extend the capability of the 2000 watt (W) power supplies. If you have not already done so, to take advantage of these new features, download and install the latest management module firmware from http://www.ibm.com/support/.

Attention: Power modules must always be present and operating in power bays 1 and 2. When any blade server or option is in blade bays 7 through 14, power modules must be present and operating in all four power-module bays.

If a power module fails or an ac power failure occurs, BladeCenter units configured for redundant power operation, as described in this document, will operate in a nonredundant mode, and the blower modules will run at full speed. You must replace the failing power module or restore ac power as soon as possible to regain redundant power operation and to reset the blower modules to their normal operating speed.

As of the date of this printing, four BladeCenter power-module options are supported:

- IBM BladeCenter 1200 W Power Supply Module (part number 48P7052)
- IBM BladeCenter 1200 W to 1400 W Power Supply Upgrade Kit (part number 90P0197)
- IBM BladeCenter 1800 W Power Supply Module (part number 13N0570)
- IBM BladeCenter 2000 W Power Supply Module (part number 26K4816)

Go to http://www.ibm.com/servers/eserver/serverproven/compat/us/ for information about these options.

The most recent version of this document and all other BladeCenter documentation is at http://www.ibm.com/support/.

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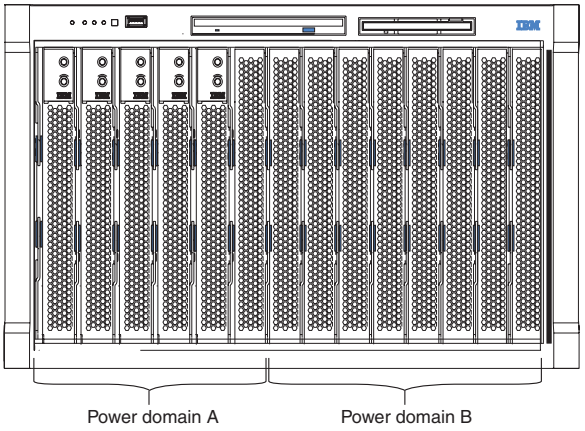
BladeCenter power overview

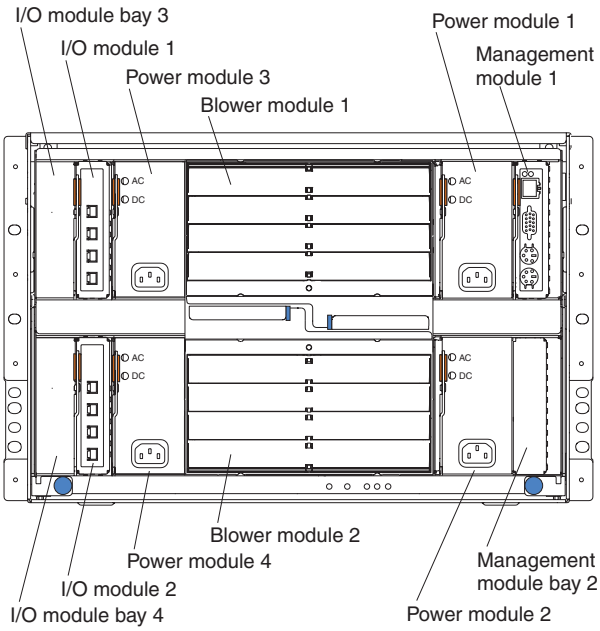
Your BladeCenter unit is separated into two power domains. Power domain A supports all the BladeCenter modules and bays 1 through 6; power domain A uses power modules 1 and 2.

Power domain B supports bays 7 through 14 and uses power modules 3 and 4. To support devices in power domain B, a power-supply option (consisting of two power modules) must be installed.

BladeCenter unit front view



BladeCenter unit rear view



Important:

1. The power modules must be installed in pairs in a domain and must match each other in capacity (wattage, amperage, and so on).
2. A power domain operating above the capacity of a single power module results in a nonredundant power condition.
3. In a pair of power modules, a power module that is not connected to 200-240 volt ac power source results in a nonredundant power condition.
4. To provide true redundant power, BladeCenter power modules 1 and 3 must be connected to a different 200 - 240 volt ac power source than power modules 2 and 4.
5. An installed power module must be connected to an ac power source and must not be used as a filler module.

The following tables list the power requirement for each IBM BladeCenter blade server or option that is available as of the date of this printing. These power requirements assume that each blade server is fully configured and are based on typical workloads. Use the values in these tables and complete the upgrade calculation (see “Upgrade calculation” on page 530) to determine which power modules are needed to deliver full power redundancy for your configuration.

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Table 153. HS20 blade server power values

BladeCenter HS20 blade server	IBM power units for the corresponding number of installed microprocessors	
	1 microprocessor	**2 microprocessors**
2.0 GHz/400 MHz (8678-21X)	0.9	1.1
2.4 GHz/400 MHz (8678-41X)	0.9	1.2
2.6 GHz/400 MHz (8678-51X)	1.0	1.2
2.8 GHz/400 MHz (8678-61X)	1.0	1.3
2.4 GHz/533 MHz (8832-9TX)	0.9	1.2
2.8 GHz/533 MHz (8832-21X, 8832-L1X, 8832-LTX)	1.0	1.5
3.06 GHz/533 MHz (8832-31X, 8832-M1X)	1.2	1.6
3.06 GHz/533 MHz (8832-N1X)	Does not apply	1.9
3.2 GHz/533 MHz (8832-G1X, 8832-J1X, 8832-GTX)	1.2	1.65
2.8 GHz/800 MHz (8843-L1X and 8843-LTU)	1.05	1.55
2.8 to 3.8 GHz/800 MHz (all 8843 except as listed above)	1.4	2.3

Table 154. HS40 blade server power values

BladeCenter HS40 blade server (occupies 2 bays)	IBM power units and the corresponding number of installed microprocessors (power unit value for each bay)			
	1 microprocessor	**2 microprocessors**	**3 microprocessors**	**4 microprocessors**
2.0 GHz/400 MHz (8839-21X)	0.70	0.90	1.10	1.30
2.2 GHz/400 MHz (8839-51X)	0.70	0.95	1.15	1.40
2.7 GHz/400 MHz (8839-61X, 8839-6TX)	0.75	1.0	1.25	1.55
2.8 GHz/400 MHz (8839-41X)	0.75	1.0	1.30	1.55
3.0 GHz/400 MHz (8839-71X)	0.80	1.1	1.35	1.67

Important:

The HS40 blade server occupies two adjacent bays. When you complete the "Power worksheets" on page 532, enter the power unit value from Table 154 twice, once for each bay that the blade server occupies. If you install an HS40 blade server in bays 6 and 7, the blade server will use power from both power domain A and power domain B. In the power worksheets, enter the power unit value twice, once for bay 6 of power domain A and once for bay 7 of power domain B.

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Table 155. JS20 blade server power values

BladeCenter JS20 blade server	IBM power units for two installed microprocessors
1.6 GHz/800 MHz (8842-21X)	1.5
2.2 GHz/1.1GHz (8842-41X)	1.6

Table 156. LS20 blade server power values

BladeCenter LS20 blade server	IBM power units for the corresponding number of installed microprocessors	
	1 microprocessor	2 microprocessors
2.0 to 2.6 GHz Single Core (8850-51X, 8850-71X, 8850-81X)	1.2	1.8
2.0 GHz Dual Core (8850-55x)	1.2	1.8

Table 157. BladeCenter expansion unit power values

BladeCenter Expansion unit[1]	IBM power units
SCSI Storage Expansion Unit, SCSI Storage Expansion Unit 2	0.4

Notes:
1. The SCSI Storage Expansion Unit is not available for the LS20 blade server.

Upgrade calculation

To determine the power-module capacity that is needed to maintain full redundancy in each power domain, complete the following steps.

If you have two 2000 W power modules installed in power domain A and two 2000 W power modules installed in power domain B, you do not need to complete this upgrade calculation. Your system meets the requirements to maintain full power redundancy in both domains.

Attention: If you are replacing the existing power modules with 2000 W power modules, you must upgrade the management-module firmware. If two management modules are installed in the BladeCenter unit, both management modules must be upgraded to the same level of firmware. Go to the IBM Support Web site at http://www.ibm.com/support/ and obtain the latest firmware.

1. In the power worksheets on page 532, list the blade servers or other devices that are installed in the bays.
2. In the tables on page 529, look up the number of IBM power units associated with each device and enter it in the applicable power worksheet (see "Example calculation" on page 532).
3. Add all of the IBM power unit values for each domain and enter the totals.
4. To maintain full power redundancy in power domain A, make sure that the power modules in bays 1 and 2 are connected to different 200 - 240 volt ac power sources and meet the requirements in the following table:

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Table 158. Power domain A minimum power requirements

Sum of IBM power units for blade servers in Power domain A	Minimum power module required
Less than 7.4	1200 W (labeled 7.5A)
Greater than or equal to 7.4 and less than 9.0	1400 W (labeled 9A)
Greater than or equal to 9.0 and less than 10.0	1800 W (labeled 12A)
Greater than or equal to 10.0	2000 W (labeled 13.5A)

Important: If the sum of the power unit values in power domain A is greater than the capacity of the installed power modules, power domain A has nonredundant power. Complete the following steps:

a. Determine whether rearranging the installed devices between power domain A and power domain B in the BladeCenter unit will sufficiently reduce the power requirements for the power domain (use the power worksheets on page 532).
b. If rearranging the installed devices does not sufficiently reduce the power requirements, the power modules must be upgraded to maintain redundancy. Install the 1200 W to 1400 W Power Supply Upgrade Kit (part number 90P0197) on the power modules to attain 1400 W, install the 1800 W Power Supply Module option (part number 13N0570) to attain 1800 W, or install the 2000 W Power Supply Module option (part number 26K4816) to attain 2000 W. Go to http://www.ibm.com/servers/eserver/serverproven/compat/us/ for information about ordering these options.

5. To maintain full power redundancy in power domain B, make sure that the power modules in bays 1 and 2 are connected to different 200 - 240 volt ac power sources and meet the requirements in the following table:

Table 159. Power domain B minimum power requirements

Sum of IBM power units for blade servers in Power domain B	Minimum power module required
Less than 9.9	1200 W (labeled 7.5A)
Greater than or equal to 9.9 and less than 11.5	1400 W (labeled 9A)
Greater than or equal to 11.5 and less than 13.4	1800 W (labeled 12A)
Greater than or equal to 13.4	2000 W (labeled 13.5A)

Important: If the sum of the power unit values in power domain B is greater than the capacity of the installed power modules, power domain B has nonredundant power. Complete the following steps:

a. Determine whether rearranging the installed devices between power domain A and power domain B in the BladeCenter unit will sufficiently reduce the power requirements for the power domain (use the power worksheets on page 532).
b. If rearranging the installed devices does not sufficiently reduce the power requirements, the power modules must be upgraded to maintain redundancy. Install the 1200 W to 1400 W Power Supply Upgrade Kit (part number 90P0197) on the power modules to attain 1400 W, install the 1800 W Power Supply Module option (part number 13N0570) to attain 1800 W, or install the 2000 W Power Supply Module option (part number 26K4816) to attain 2000 W. Go to http://www.ibm.com/servers/eserver/serverproven/compat/us/ for information about ordering these options.

Statement 13:

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DANGER

Overloading a branch circuit is potentially a fire hazard and a shock hazard under certain conditions. To avoid these hazards, ensure that your system electrical requirements do not exceed branch circuit protection requirements. Refer to the information that is provided with your device

Power distribution unit assessment

If your calculations indicate that you need to upgrade your power modules, you will also need to reassess your power distribution unit (PDU) configuration. Use the IBM *BladeCenter Planning and Installation Guide* to determine the number and types of PDUs that you need. To obtain the *BladeCenter Planning and Installation Guide*, go to http://www.ibm.com/support/.

Power worksheets

Power domain A worksheet (for power modules 1 and 2)

Blade bay	Description of installed device	IBM power units
1		
2		
3		
4		
5		
6		
	Total	

Power domain B worksheet (for power modules 3 and 4)

Blade bay	Description of installed device	IBM power units
7		
8		
9		
10		
11		
12		
13		
14		
	Total	

Example calculation

Power domain A worksheet (for power modules 1 and 2)

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Blade bay	Description of installed device	IBM power units
1	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-31X	1.6
2	SCSI Storage Expansion Unit	0.4
3	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-31X	1.6
4	SCSI Storage Expansion Unit	0.4
5	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-31X	1.6
6	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-31X	1.6
	Total	7.2

Result:

- 7.2 IBM power units < 7.4 IBM power units
- Two 1200 W power modules will provide full power redundancy for power domain A

Power domain B worksheet (for power modules 3 and 4)

Blade bay	Description of installed device	IBM power units
7	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-N1X	1.9
8	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-N1X	1.9
9	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-N1X	1.9
10	3.06 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-N1X	1.9
11	3.2 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-G1X	1.65
12	2.8 GHz/400 MHz HS40 blade server with 4 microprocessors - first bay (HS40 occupies 2 bays) 8832-41X	1.55
13	2.8 GHz/400 MHz HS40 blade server with 4 microprocessors - second bay (HS40 occupies 2 bays) 8839-41X	1.55
14	3.2 GHz/533 MHz HS20 blade server with 2 microprocessors 8832-G1X	1.65
	Total	14.0

Result:

- 14.0 IBM power units > 13.4 IBM power units
- Two 2000 W power modules will provide full power redundancy for power domain B

Attention: To maintain proper system cooling, each unoccupied blade bay must contain a filler blade. To maintain proper module cooling, each unoccupied I/O, management-module, or power-module bay must contain a filler module. An installed power module must be powered on and must not be used as a filler module.

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Appendix G. xSeries DC power and NEBS-compliant models

The following models, designed for the telecommunications industry and may utilize DC Power and/or are NEBS compliant.

Refer to individual system sections for complete configuration details.

Model	Description
xSeries 343 DC Power model 8847-14X	2.4GHz/533MHz-512KB L2 P4, 1GB memory. Includes a -48v to -60v, 470w DC power supply.
xSeries 343 DC Power model 8847-24X	2.4GHz/533MHz-512KB L2 P4, 2GB memory. Includes two -48v to -60v, 470w DC power supplies.
BladeCenter T DC Power model 8720-1RX	BladeCenter T chassis including two -48 to -60v, 1300w DC power supplies.
BladeCenter T AC Power model 8730-1RX	BladeCenter T chassis including two -200 to -240v, 1300w DC power supplies.
BladeCenter HS20 8832-9TX	2.4GHz/533MHz-512KB L2 Xeon, 1GB memory.
BladeCenter HS20 8832-LTX	2.8GHz/533MHz-512KB L2 Xeon, 1GB memory.
BladeCenter JS20 8842-4TY	2-way 2.2GHz/ - 512 KB L2 PowerPC 970, 1GB memory.

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MHz and GHz measure only microprocessor internal clock speed, not application performance. Many factors affect application performance.

When referring to storage capacity, MB means 1 000 000 bytes, GB means 1 000 000 000 and TB means 1 000 000 000 000 bytes. Accessible capacity is less; up to 3 GB is used in the service partition. Actual storage capacity will vary based upon many factors and might be less than stated. Some numbers given for storage capacities give capacity in native mode followed by capacity using data compression technology.

Adapters rated at a lower frequency than the slots in which they are installed might reduce the bus to the frequency of the slowest adapter.

Tape drives that use data compression technology have storage capacity that will vary depending upon whether the drive is operating in native mode (without compression) or compressed mode. Actual storage capacity will vary based upon many factors and might be less than the maximum possible.

Maximum internal hard disk and memory capacities might require the replacement of any standard hard disk drives and memory and the population of all hard disk drive bays and memory slots with the largest currently supported available drives and memory modules. When referring to variable speed CDs and DVDs, actual playback speed will vary and is often less than the maximum possible.

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